DOCUMENT RESUME

ED 147 156 SE 023 334

TITLE	National Environmental/Energy Workforce Assessment for South Dakota.
INSTITUTION	National Field Research Center Inc., Iowa City, Iowa.
SPONS AGENCY	Environmental Protection Agency, Washington, D. C.
PUB DATE	77
GRANT	EPA-T-900591010
NOTE	108p.; For related documents, see SE 023 292-360; Contains occasional colored pages
EDRS PRICE	MF-$0.83 HC-$6.01 Plus Postage.
DESCRIPTORS	Air Pollution Control; *Career Opportunities; *Educational Programs; Energy; Environment; *Manpower Needs; Pesticides; *Pollution; Post Secondary Education; Radiation; *State Legislation; Water Pollution Control
IDENTIFIERS	Noise; Solid Wastes; *South Dakota

ABSTRACT

This report presents existing workforce levels, training programs and career potentials and develops staffing level projections (1976-1982) based on available information for the State of South Dakota. The study concerns itself with the environmental pollution control areas of air, noise, potable water, pesticides, radiation, solid waste, wastewater, and energy. The format includes workforce profiles, projections, growth and career options for each of the areas investigated. Additional sections of the report outline state legislation and selected post secondary institutions with formal Environmental/Energy programs. A state profile and summary is included for cross-reference. The selected bibliography is appended in the Region VIII report. This document is one in a series of 69 which presents information for each of the states, Washington, D.C., Puerto Rico, and the Virgin Islands, and national and regional summaries. (CS)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED147156

A National Environmental/Energy Workforce Assessment

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

Conducted by:

National Field Research Center, Inc.

P.O. Box 287

Iowa City, Iowa 52240

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Donald Cook

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

SE 023 334

NATIONAL ENVIRONMENTAL/ENERGY

WORKFORCE ASSESSMENT

for

SOUTH DAKOTA

Conducted by:

NATIONAL FIELD RESEARCH CENTER, INC

Under Grant from:

UNITED STATES

ENVIRONMENTAL PROTECTION AGENCY

Grant #T900591010

1977

This document has been reviewed by the Environmental Protection Agency and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Environmental Protection Agency, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

National
Field
Research
Center, Inc.

Box 287 Iowa City, Iowa 52240 (319) 351-8789

INTRODUCTORY NOTE

The National Environmental/Energy Workforce Assessment was conducted by National Field Research Center, Inc. with main offices in Iowa City, Iowa. The following personnel have had primary responsibility for the Assessment and project report.

IOWA CITY, IOWA
- Dr. Darold E. Albright, President
- Paul E. Bridges, Executive Director
- Dr. Richard L. Benesh, Project Director
- Judith J. Gordon
- Alan M. Stowell
- Anita M. Stowell
- Mary Kay (Edge) Wade

ATLANTA, GEORGIA
- Elizabeth G. Nielsen, Regional Director
- Robert Oxberger

DENVER, COLORADO
- Nancy C. Dillenberg, Regional Director

SEATTLE, WASHINGTON
- Steven Silva, Regional Director

WASHINGTON, D.C.
- Frank E. Smith, Project Coordinator
- Lloyd B. Chaisson, Assistant Project Coordinator
- Jack F. Seum

Additional research and clerical assistance was provided by Frederick M. Wall, Maxine Wolfe, Margaret Fehn, Sandra Hogsed, Karen Kirchoff, Sharon Leiker, Marilyn Low, Mary McCormac, and Joan Urquhart.

FIELD OFFICES

ATLANTA
2700 Cumberland Pkwy
Suite 150
Atlanta, GA 30339
(404) 433-2644

DENVER
2600 S. Parker Rd.
Suite 160, No. 6
Denver, CO 80232
(303) 751-4962

SEATTLE
927 Unitec Pacific Bldg.
1000 2nd Ave.
Seattle, WA 98101
(206) 623-9170

WASHINGTON, D.C.
1522 K Street, N.W.
Suite 600
Washington, D.C. 20005
(202) 223-9136

TABLE OF CONTENTS

	Page
ILLUSTRATIONS	iii
ACKNOWLEDGEMENT	vi
PREFACE	vii
FOREWORD	viii
STATE SUMMARY	1
STATE PROFILE	14
POLLUTION CONTROL AND ABATEMENT AGENCIES	16
POLLUTION CONTROL AND ABATEMENT PROGRAMS	23
I Air	24
II Noise	30
III Pesticides	34
IV Potable Water	41
V Radiation	52
VI Solid Waste	57
VII Wastewater	62
VIII Energy	69
SELECTED POST SECONDARY INSTITUTIONS WITH FORMAL ENVIRONMENTAL/ENERGY PROGRAMS	76
STATE LEGISLATION	79

NOTE: The Selected Bibliography is appended to each Regional Report.

ILLUSTRATIONS

Figure		Page
1	South Dakota, Department of Environmental Protection (DEP), Organizational Chart	18
2	South Dakota, Department of Agriculture, Organizational Chart	20
3	South Dakota, Department of Health, Organizational Chart	22
4	State of South Dakota, Air Quality: Particulates and SO_2	25
5	State of South Dakota, Department of Agriculture, Division of Agricultural Regulations & Inspections	35
6	South Dakota, Major Drainage Basins	42
7	State of South Dakota, State Analytical Laboratory, Organizational Chart	44
8	South Dakota, Department of Environmental Protection (DEP), Water Quality Program, Organizational Chart	65
9	Fuels Related Projects: South Dakota	70

Table		Page
I	South Dakota Department of Environmental Protection, Air Quality Program, Current (1976) Staffing Level	26
II	South Dakota Department of Environmental Protection, Air Quality Training - FY '76	28
III	State of South Dakota, Municipal Noise Ordinances (1976)	31
IV	South Dakota Department of Agriculture, Division of Agricultural Regulations & Inspections, Current (1976) Staffing Level - Pesticides	36

Table		Page
V	South Dakota Pesticides Personnel, Current (1976) Staffing Level, (est.)	36
VI	State of South Dakota, Pesticide Personnel, Workforce Projection to 1982 (est.)	38
VII	South Dakota Department of Environmental Protection, Office of Water Hygiene, Current (1976) Staffing Level	43
VIII	South Dakota State Analytical Laboratory, Environmental Section, Current (1976) Staffing Level	45
IX	State of South Dakota, Water Supply & Distribution Plant Personnel, Certified Operators, Current (1976) Staffing Level	46
X	South Dakota Department of Environmental Protection, Office of Water Hygiene, Workforce Projections to 1982 (est.)	47
XI	South Dakota State Analytical Laboratory, Environmental Section, Workforce Projections to 1982 (est.)	48
XII	State of South Dakota, Water Supply & Distribution Plant Personnel, Certified Operators, Workforce Projections to 1982 (est.)	48
XIII	South Dakota Department of Health, Division of Health Services, Radiological Health Hazards Program, Current (1976) Staffing Level	53
XIV	State of South Dakota, Personnel Occupationally Exposed to Radiation (1975)	54
XV	South Dakota Department of Health, Division of Health Services, Radiological Health Hazards, Workforce Projections to 1982 (est.)	54

Table		Page
XVI	South Dakota Department of Environmental Protection, Office of Air Quality & Solid Waste Management, Solid Waste Management Program, Current (1976) Staffing Level	58
XVII	South Dakota Department of Environmental Protection, Office of Air Quality & Solid Waste Management, Solid Waste Management Program, Workforce Projections to 1982 (est.)	59
XVIII	South Dakota Department of Environmental Protection, Office of Water Quality, Current (1976) Staffing Level	63
XIX	State of South Dakota, Waste Water Treatment Plant Personnel, Certified Operators, Current (1976) Staffing Level	64
XX	South Dakota Department of Environmental Protection, Office of Water Quality, Workforce Projections to 1982 (est.)	66
XXI	State of South Dakota, Waste Water Treatment Plant Personnel, Certified Operators, Workforce Projections to 1982 (est.)	66
XXII	South Dakota Office of Energy Policy, Current (1976) Staffing Level	72
XXIII	South Dakota Office of Energy Policy, Workforce Projections to 1982 (est.)	73

ACKNOWLEDGEMENT

This report was researched and developed under the guidance of the following:

Mr. Elmer Chenault
Regional Manpower Officer
U.S. Environmental Protection Agency
Region VIII

Dr. Allyn O. Lockner
Secretary
South Dakota
Department of Environmental Protection

Technical assistance and cooperation were extended by numerous individuals: Mr. Richard Howard, Mr. Daniel L. Tupa, Mr. Roger Stead, Mr. Terrence Keeler, Mr. William Aisenbury, Mr. Donald Bogue, and Mr. Blaine Barker, of the South Dakota Department of Environmental Protection; Mr. Melvin Nelson, State Department of Health; Mr. James Van Loan, South Dakota Office of Energy Policy; Mrs. LaJean Volmer, State Analytical Lab; and Mr. Roger Pearson, South Dakota Department of Agriculture.

An additional word of appreciation is extended to Dr. Allyn O. Lockner who was kind enough to assist in the review of this report. To those associated offices and agencies who assisted in the research and development of this report, the authors extend their sincere thanks.

PREFACE

The research and development of the NATIONAL ENVIRONMENTAL/ENERGY WORKFORCE ASSESSMENT project was conducted under the aegis of the U.S. Environmental Protection Agency by the National Field Research Center, Inc., Iowa City, Iowa, and the Denver Regional Office. This report is a summary of the State of South Dakota and is one of six state reports within Federal Region VIII.

The State of South Dakota report presents an overview of the current workforce, projections of workforce requirements (1976-1981), training and certification, and career potential in environmental pollution control and abatement. The environmental areas depicted within this report are: air, noise, pesticides, potable water, radiation, solid waste, waste water and energy conservation/conversion.

FOREWORD

This state report is a summary of Phase I of the NATIONAL ENVIRONMENTAL/ENERGY WORKFORCE ASSESSMENT project in South Dakota. The information contained within this report was obtained by extensive on-site interviews and research of project related materials. The information retrieval was conducted through representative federal, state, and when time allowed, local agencies. Telephone and written surveys were utilized as a secondary research source.

Data which is not documented herein is representative of the best professional judgements of experts currently working in the field.

This study is designed specifically for use as a reference tool at the federal regional level as well as at the state level. It is anticipated that the people of the State of South Dakota will be the beneficiaries of this endeavor.

National Environmental Energy
Workforce Assessment

Phase I

SOUTH DAKOTA

State Summary

I. AIR

The major air quality problem in South Dakota is fugitive dust, as evidenced in the Black Hills Air Quality Maintenance Area and the Sioux Falls Air Quality Maintenance Area. The major sources are rock quarries, unpaved roads and unrestrained dust from paved roads. Other major areas of concern include monitoring for heavy metals and lead.

The primary responsibility for air pollution control and abatement in South Dakota has been delegated to the Department of Environmental Protection, Air Quality Program. The DEP Air Quality Program includes eight personnel and has estimated that there are currently approximately six additional people involved in air pollution control and abatement programs across the state.

The Department of Environmental Protection (DEP) has stated that no changes in staffing levels of the Air Quality Bureau are anticipated to occur within the next five years, although program responsibilities may increase. A one to two percent per annum increase is projected to fulfill the statewide private sector workforce requirements to 1982. Occupational availabilities will be limited during the next three to five years and career oportunities at the state level will be scarce, mostly turnover replacements, as the staffing levels seem to have reached their maximum.

II. NOISE

The State of South Dakota to date has developed no programmatic responsibility for noise pollution control and abatement at the state level. The population fo the state is 665,507, a density of 8.8 persons per square mile. Although manufacturing is increasing statewide, South Dakota remains agriculturally based and nonindustrial. The need for legislation and a state noise program have not been demonstrated successfully as yet in South Dakota.

Currently, there is no workforce at the state level. The municipal programs across the state are non-existent with the exception of two communities which have established ordinances. To date, there are no local noise pollution control and abatement perosnnel other than the law enforcement authorities.

Within the next three to five years the establishment of a state level noise program is described by state officials as unlikely. However, with the passage of legislation, personnel would be assigned to establish a program.

Career opportunities must be described as exceedingly limited. With the establishment of a state level program, competition would be keen were persons properly qualified. It appears likely that job opportunities in the noise field will be scarce at least for the ensuing few years.

III. PESTICIDES

The South Dakota Department of Agriculture, Division of Agricultural Regulations and Inspections has been designated as the lead agency for pesticides control. The Department of Agriculture is responsible for the implementation of the certification program as well as other pesticides related activities in South Dakota. The Department offers technical assistance and cooperation to the state's Indian reservations regarding training and certification of applicators and expertise regarding Integrated Pest Management (IPM) is available upon request.

Department personnel feel that the major increases in the pesticides workforce have occurred. Minimal growth is anticipated at the state level while a two percent per annum increase in commercial applicators will take place to 1980 at which time the workforce requirements will remain stable for the ensuing two to three years. There should be no increase in the private applicator category.

Career opportunities at the state level will be limited over the next three to five years. Job openings will be more numerous at the applicator level. The applicator category is usually marked by a high turnover rate. Many of these jobs are seasonal in nature and characterized by meager salary and lack of upward mobility.

IV. POTABLE WATER

In South Dakota water is an abundant natural resource. The protection of the state's supplies and availability of drinking water to the citizens are a high priority within the state. The State of South Dakota has indicated intentions to assume primary responsibility for the Safe Drinking Water Act.

The responsibility for potable water has been assigned to the Department of Environmental Protection, the Water Hygiene Program. The Water Hygiene Program is primarily concerned with drinking water and swimming pools.

The Department of Environmental Protection has estimated increases in the Water Hygiene Program to meet the workforce requirements to 1982 predicated on the state's assuming primary enforcement responsibility for the Safe Drinking Water Act. Should the state not assume "primacy", the DEP projects virtually no changes in the composition of the Water Hygiene Program staff. Statewide workforce profiles will illustrate an approximate five percent per annum increase to 1982.

Job opportunities will be available in the water related fields. The career potentials, however, will be limited as little growth has been projected for this environmental area.

Career opportunities at the degreed and professional level will also be available over the next three to five years but on an even more limited basis than the non-degreed, non-professional level.

V. RADIATION

Although few radiation control problems currently exist in South Dakota, the SDCL 34-21 mandated responsibility for the prevention of unnecessary human radiation exposure to the Department of Health. Pursuant to this, the Radiological Health Hazards program was established. This program is primarily concerned with X-ray installations in medical and dental facilities. These facilities and activities related thereto are the major program component.

The present staff allocated to the Radiological Health Hazards program consists of two full-time professionals. Across the state, Department of Health personnel have estimated that approximately 2,000 persons are occupationally involved in the medical radiation field.

South Dakota is currently (1976) not an "Agreement State." South Dakota indicated that exposure to the citizenry from the atomic energy industry, natural radioactivity or weapons testing is insignificant when compared to the exposure from medical/dental uses. The NRC currently is responsible for these other than medical uses and their ramifications in South Dakota.

Engineering and scientific related career opportunities will be available over the next five years. New careers will, most likely, not emerge in the radiation control field in South Dakota.

VI. SOLID WASTE

Among the major concerns of the State of South Dakota regarding solid waste management are: (1) dumps; (2) the allocation of monies to the local level for areawide planning; and, (3) the identification of toxic and/or hazardous wastes sites. The statewide solid waste management program is conducted by the Department of Environmental Protection (DEP). Solid Waste Management and the Air Quality programs have been combined and together compose one of the four DEP components.

The Solid Waste Management Program is expected to experience increases in staffing levels over the next three to five years. With the passage of the Resource Conservation and Recovery Act, however, increases may be greater in order to fulfill the new responsibilities. Information regarding the impact of this Act was not available at the time of this writing, however. Professionals in the field have estimated that the private sector workforce may experience a three to five percent per annum increase over the next five years.

Career opportunities, although limited, will be available from the non-degreed through the degreed levels to 1982 in South Dakota. The areas of resource recovery and hazardous and/or toxic wastes should present the largest number of job offerings.

VII. WASTE WATER

The responsibility for the environmental area of waste water in South Dakota has been allocated to the Department of Environmental Protection (DEP), the Water Quality Program. The Water Quality Program monitors and protects the lakes and waterways of the state.

Supportive of the Program and the Department is the quasi-legislative, quasi-judicial Board of Environmental Protection. This Board issues rules and regulations governing water quality standards across the state.

The statewide workforce including the DEP staff will experience increases over the next three to five years. These increases will not be in excess of five percent per annum for the most part.

Currently there are approximately 150 operators per year who are recipients of waste water treatment training. Primarily this training is accomplished during on-site visitations by the Training Officer. The Waste Water Training Officer often acts in the capacity of a trouble shooter.

Career opportunities in the waste water field will be available specifically on the certified operator level. Operators will require increasing skills training as plants are upgraded. Limited degreed level positions will represent job opportunities in South Dakota over the next five years.

VIII. ENERGY

The major resource in South Dakota is water which is a constraining factor in energy conversion. Although the future is unclear as to conversion of coal to other forms of energy in the state, several fossil fuels related projects have been proposed for South Dakota. The environmental problems associated with energy development will be manifested as a result of energy resource extraction and/or conversion in the neighboring states of North Dakota, Montana and Wyoming.

The lead agency is the Office of Energy Policy and currently the staffing level totals seven. Firm figures are not available for the private sector. Substantial increases will occur at the state level.

Career opportunities will be available for the most part in the private sector. Attorneys and Policy Analysts will present job opportunities at the state level. Research, Environmental Impact Statement and energy conservation expertise will be representative of the occupational skills desired in the next three to five years at both the state and the local levels.

Evidence suggests that South Dakota will become a "bridge" state for the transportation of coal through South Dakota to and from other states. Pipelines, railroads and other secondary factors will affect South Dakota as energy development continues within the neighboring states of North Dakota, Montana and Wyoming.

STATE OF SOUTH DAKOTA - SUMMARY

National Environmental/Energy Workforce Assessment
Pollution Control & Abatement Personnel
Projected Workforce Requirements (1976-1981)
(estimated)

Environmental Area	1976	1977	1978	1979	1980	1981	%/annum growth (average)
AIR[1]	14	14	15	15	16	16	2%
NOISE	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PESTICIDES[2]	1,368	1,395	1,423	1,451	1,480	1,510	2%
POTABLE WATER	279	291	313	327	344	359	5%
RADIATION[3]	2,235	2,235	2,237	2,237	2,238	2,238	14%
SOLID WASTE	205	215	226	237	249	261	5%
WASTEWATER	224	235	249	261	274	284	5%
ENERGY[4]	7	9	16	18	23	25	12%
TOTALS	4,325	4,394	4,479	4,546	4,624	4,693	2%

[1]Includes no increase at state level.

[2]Does not include private applicators.

[3]Increases shown for state personnel only.

[4]Does not include private sector.

EDUCATION

South Dakota's institutions of higher education are just beginning to develop programs in the environmental area. Majors in such areas as engineering, earth science, agronomy, biology and chemistry are common, but there is apparently only one environmental program in the state. This program is an Environmental Management major at South Dakota State University. In 1976, the majority of the graduates were placed in environmental fields or in positions involving planning at the district level.

There are very few two-year colleges in South Dakota. Because the state has a small population and is generally rural, it does not appear that more two-year institutions will be created in the near future. Of the few two-year colleges in the state, none has an environmental program at the present time.

The environmental education needs of South Dakota will probably have to be met at the four-year level for the foreseeable future.

LEGISLATION

The environmental/energy legislation for South Dakota was obtained by request from various agency personnel and through various library references. Summaries of the legislation deemed most relevant to the eight subject areas of the workforce assessment were prepared, and are included in the respective state reports. The following list of laws represents virtually all environmental legislation for the state. Only certain of the following laws were summarized; the list is presented to show, by title, the kinds of laws which have been enacted.

Environmental Policy Act

Remedies for Protection of the Environment Law

Clean Air Act

Agricultural Pesticide Application Act

Insecticides, Fungicides and Rodenticides Act of 1947

Radiation Control Act

Radiation Exposure Control Act

Solid Waste Disposal Act

Water Pollution Control Law

National Environmental Energy
Workforce Assessment

Phase I

SOUTH DAKOTA

State Report

STATE PROFILE

The first Dakotans established an Indian campsite in Fall River County about 5000 B.C. A number of nomadic tribes occupied the Black Hills around 1000 A.D. By 1300 A.D. agricultural people were migrating into South Dakota and are today thought to be the ancestors of the Mandans. The Arikara Indians moved into South Dakota during the sixteenth century because of severe drought, an all too familiar story to South Dakotans today. But of all the early inhabitants of South Dakota, none is more famous than the Dakota or Sioux Indians. By the seventeenth century, the Sioux had divided into seven major tribes and were spread over large areas of the west.

Until 1763 the Upper Missouri Valley belonged to the French. In that year, the territory was ceded to Spain. However, in 1803 the Louisiana Purchase terminated the activities of the French and the Spanish in the area. By 1854 the increase in the white man's migrations into the area gave rise to increased tensions and open hostility. In 1874 attention was turned to the Black Hills. The discovery of gold would, in effect, nullify the Laramie Indian Treaty of 1868. Under the terms of the Treaty the Sioux, through the creation of the Reservation, had sealed off the area from the white man. There followed a great influx of miners and cattlemen, the famous massacre at the Little Big Horn, and the eventual opening of the mining regions of western South Dakota. The discovery of gold was followed by an era of bonanza ranching, fast and furious railroad construction, and territorial tensions about land division which included the present states of Montana, Wyoming, North Dakota and South

Dakota. The year 1889 brought statehood to North and South Dakota. As the new century dawned, one of the most colorful chapters in American history came to an end.

South Dakota is representative of the colorful history of the frontier. Today, South Dakota's 77,047 square miles offer rememberances of this colorful past. The Black Hills cover 5,000 square miles and consist of masses of uplifted rock eroded into gorges, ridges, and buttes. The famous Badlands are regions of rock almost bare of vegetation that have eroded into fantastically shaped masses. Water is South Dakota's greatest natural resource. The state has many lakes and rivers including the Missouri, Big Sioux, James, Cheyenne, White, Bad, and Moreau. The Typically continental type climate often is marked by temperature extremes in winter and summer.

Today 665,507 people share this land with the nation's largest remaining buffalo herd, 300 species of birds, 400 species of flowering plants and many western mammals, including the coyote which is the official state animal. Indian lands cover 8,400 square miles and include the famous Rosebud, Pine Ridge, Standing Rock, Cheyenne River, and Yankton Reservations. Although urban centers do exist, the state is predominately agrarian. South Dakotans today work diligently to preserve their unique and colorful history.

POLLUTION CONTROL AND ABATEMENT AGENCIES

The following agencies are those which are involved with environmental programs within the state. Each narrative provides a review of the functions and activities of each agency as they relate to environmental programs.

SOUTH DAKOTA DEPARTMENT OF ENVIRONMENTAL PROTECTION

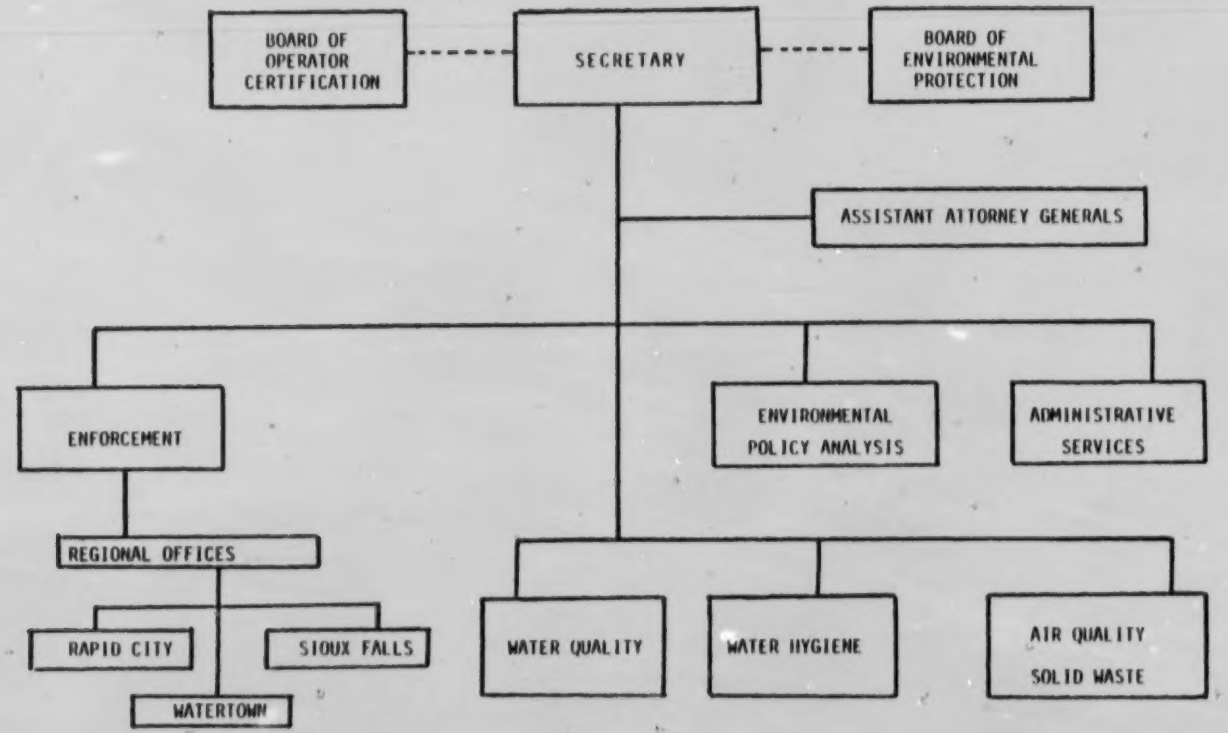
The South Dakota Department of Environmental Protection (DEP) was established in 1973 and is charged with the major responsibility of protection of the environment for the residents of South Dakota. The South Dakota Department of Environmental Protection is composed of three offices which include: (1) Water Quality; (2) Water Hygiene; and (3) Air Quality and Solid Waste. Operator Certification is a program under the offices of Water Quality and Water Hygiene.

The DEP has two boards assigned to it; the Board of Environmental Protection and the Board of Operator Certification. These boards make up the quasi-legislative, quasi-judicial, and special budgetary functions necessary to support the Department of Environmental Quality.

The Department of Environmental Protection is located in the state capital, Pierre. Three field offices are strategically located in Watertown, Rapid City, and Sioux Falls. The total number of DEP personnel is currently 53, plus two full-time Assistant Attorney Generals. This reflects a total agency increase of four from 1975.

Figure 1: S O U T H D A K O T A - DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP)

ORGANIZATIONAL CHART



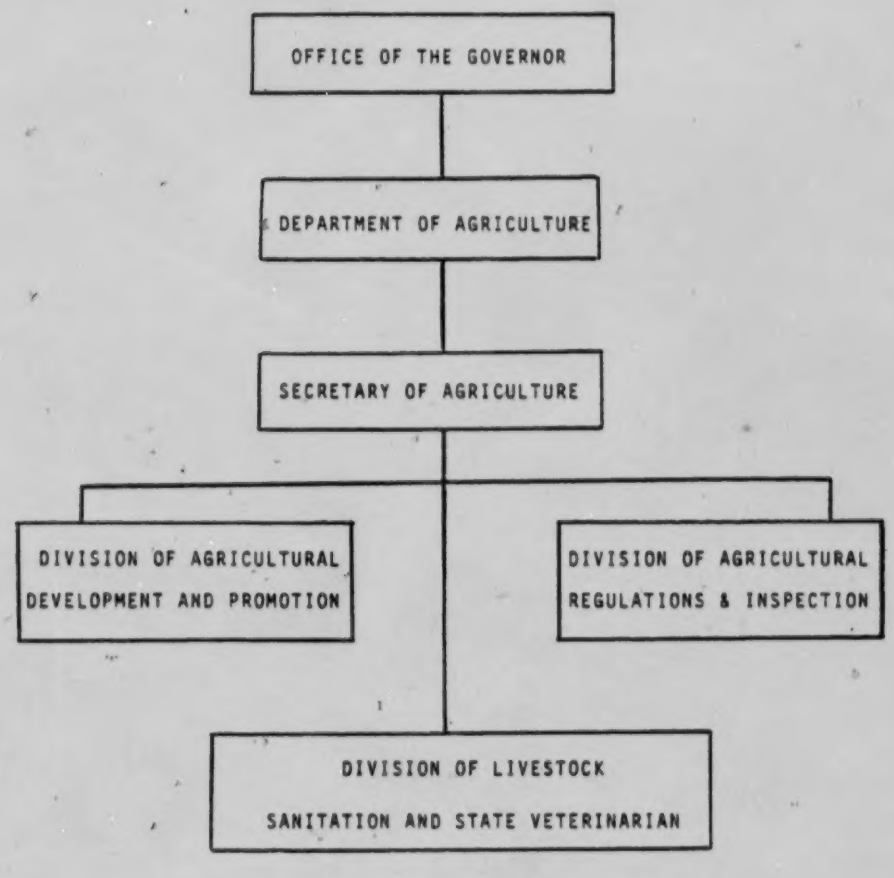
18

SOUTH DAKOTA DEPARTMENT OF AGRICULTURE

The primary responsibility of the Department of Agriculture is to encourage and promote the development of agriculture and its related industries. Other equally important duties of the Department include investigation of marketing conditions, assistance to producers as well as consumers, and the enforcement of laws which have been devised to protect the public and the environment. To carry out these responsibilities three divisions were created under SDCL 1-41-1 et. seg. The divisions include Agricultural Development and Promotion, Livestock, and, Regulations and Inspection.

S O U T H D A K O T A

Figure 2: DEPARTMENT OF AGRICULTURE


OFFICE OF THE GOVERNOR
DEPARTMENT OF AGRICULTURE
SECRETARY OF AGRICULTURE
DIVISION OF AGRICULTURAL DEVELOPMENT AND PROMOTION
DIVISION OF AGRICULTURAL REGULATIONS & INSPECTION
DIVISION OF LIVESTOCK SANITATION AND STATE VETERINARIAN

SOUTH DAKOTA DEPARTMENT OF HEALTH

The SDCL 34-1 has provided for the establishment of the South Dakota Department of Health. SDCL 34-1-9 authorized establishment of divisions "as may be necessary for the proper functioning" of the Department. The divisions are currently established as follows:

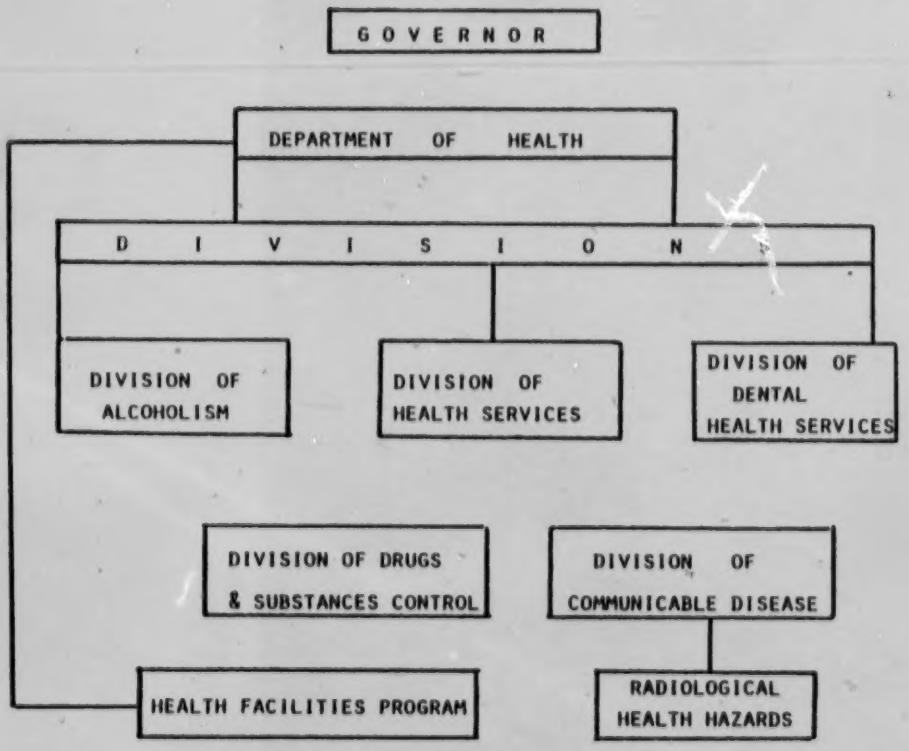
- Division of Alcoholism;
- Division of Dental Health Services;
- Division of Drugs and Substances Control;
- Division of Communicable Diseases;
- Division of Health Services.

One program area has been established and is entitled:

- Health Facilities Program.

The major responsibility of the Department of Health is the protection of the public health by appropriate means.

S O U T H D A K O T A DEPARTMENT OF HEALTH - Figure 3. ORGANIZATIONAL CHART


GOVERNOR
DEPARTMENT OF HEALTH
D I V I S I O N
DIVISION OF ALCOHOLISM
DIVISION OF HEALTH SERVICES
DIVISION OF DENTAL HEALTH SERVICES
DIVISION OF DRUGS & SUBSTANCES CONTROL
DIVISION OF COMMUNICABLE DISEASE
HEALTH FACILITIES PROGRAM
RADIOLOGICAL HEALTH HAZARDS

Pollution Control and Abatement Programs

I. AIR

A. Introduction

The major air quality problem in South Dakota is fugitive dust. The manifestations of this problem are evidenced in the Black Hills Air Quality Maintenance Area (AQMA) and the Sioux Falls Air Quality Maintenance Area (AQMA). The major sources of fugitive dust are rock quarries, unpaved roads, agricultural activities, and re-entrained dust from paved roads. Another major area of concern resides in the monitoring of sulphur dioxide (SO_2), as well as the maintenance of the non-degradation section of the Clean Air Act.

The major responsibility for air pollution control and abatement in South Dakota has been allocated to the Department of Environmental Protection, Air Quality Program. Now, and in the future, this program will be a maintenance program.

B. Workforce Profile

The Air Quality Program maintains air monitoring stations at the following locations across South Dakota:

- Rapid City
- Pierre
- Aberdeen
- Huron
- Hot Springs
- Spearfish
- Sioux Falls
- Yankton
- Mitchell
- Brookings
- Watertown
- Deerfield
- Lead
- Redig

FIGURE 4: STATE OF SOUTH DAKOTA, AIR QUALITY

PARTICULATES AND SO_2

PARTICULATES

STATION	1973 AVERAGE CONCENTRATION	1973 MAXIMUM (DATE)	1973 MINIMUM (DATE)	1974 AVERAGE CONCENTRATION	1974 MAXIMUM (DATE)	1974 MINIMUM (DATE)	1975 AVERAGE CONCENTRATION	1975 MAXIMUM (DATE)	1975 MINIMUM (DATE)
1. BEDIG							14.7	38.5(3/03)	6.3(1/18)
2. BPEARFISH							20.1	36.9(6/11)	5.7(2/25)
3. DEERFIELD							24.3	109.5(6/29)	3.2(1/10)
4. HOT SPRINGS									
5. RAPID CITY(WATER TRT. PLANT)	71.8	247.0(1/22)	24.7(7/21)	66.1	142.8(1/17)	28.4(3/12)	84.1	171.5(12/26)	28.4(3/07)
6. RAPID CITY(PENNINGTON CO. HEALTH)	149.3	342.0(12/06)	37.8(3/05)	119.5	241.5(12/23)	43.0(1/11)	129.2	472.4(3/19)	16.0(6/30)
7. RAPID CITY(KEN PRICE RMT)							253.8	1,907.3(6/15)	10.5(3/07)
8. RAPID CITY(CEMENT PLANT)							477.0	1,529.7(8/22)	62.2(3/19)
9. PIERRE	63.4	155.5(2/03)	7.2(7/31)	55.1	112.7(10/19)	23.2(11/24)	64.0	138.2(9/09)	30.3(1/18)
10. ABERDEEN	73.5	145.9(5/10)	14.1(3/03)	55.1	137.4(7/10)	25.4(5/04)	101.7	393.5(10/15)	25.6(3/31)
11. WATERTOWN							77.8	477.7(1/12)	16.6(1/06)
12. HURON							71.6	241.1(1/12)	22.8(1/18)
13. BROOKINGS							53.9	366.9(3/30)	3.6(11/20)
14. MITCHELL							63.1	169.5(1/12)	21.5(11/20)
15. YANKTON							90.2	197.2(3/18)	18.0(3/05)
16. SIOUX FALLS(SEWER TRT. PLANT)	88.7	370.5(6/09)	30.9(3/17)	67.6	232.2(10/20)	23.7(11/13)	58.7	138.6(7/29)	7.9(11/20)
17. SIOUX FALLS(AIRPORT)	55.1	113.7(10/19)	23.2(11/14)	52.1	137.0(10/24)	20.2(11/01)	57.0	148.3(7/17)	22.7(6/30)
18. SIOUX FALLS(AUGUSTANA COLLEGE)							34.2	140.0(7/17)	19.5(6/30)
19. LEMMON							18.2	53.7(11/03)	6.0(12/08)(12/20)
20. BUFFALO-007							23.0	39.3(11/14)	19.8(9/21)
21. BUFFALO-005							18.6	47.1(9/09)	4.9(12/20)
22. BELLE FOURCHE							25.3	55.1(9/09)	7.1(12/03)

SO_2

STATION	1975 AVERAGE CONCENTRATION	1975 MAXIMUM (DATE)	1975 MINIMUM (DATE)
5. RAPID CITY(WATER TRT. PLANT)	5.0	30.1(1/30)	0.3(several)
6. RAPID CITY(PENNINGTON CO. HEALTH)	5.2	32.0(1/30)	0.0(3/19)
10. PIERRE	7.8	30.6(2/05)	1.0(several)
16. SIOUX FALLS(SEWER TRT. PLANT)	46.4	199.7(11/08)	3.6(2/11)
17. SIOUX FALLS(AIRPORT)	5.9	5.5	0.6(2/11)

AIR QUALITY MONITORING STATIONS

SOURCE: South Dakota Facts: An Abstract of Statistics Concerning People & Resources of South Dakota, South Dakota Planning Bureau, 1976.

The Air Quality Program maintains a staff of certified smoke readers who are qualified to judge the density of smoke or the amount of particulate matter in a screen by the percentage of light cut off. The program personnel conduct inspections annually of potential sources of air pollution. Between September 1975 and June 1976, field investigations numbered 154. During the same period, two notices of violation were issued as well as seven administrative orders. Technical assistance is another increasingly important aspect of the Air Quality Program.

The following table details the current workforce of the Air Quality Program. The 1976 staff is an overall increase of 1.6 persons from the previous year.

TABLE I

SOUTH DAKOTA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Air Quality Program
Current (1976) Staffing Level

Position	1976	%/annum turnover (average)
Program Director	1	0%
Environmental Engineer	2	1%
Sanitarian	4	15%
Secretarial	1	N/A
TOTAL	8	N/A

The DEP Air Quality Program has estimated that there are currently approximately six additional people involved in air pollution control and abatement programs across the state.

C. Workforce Projections

Beginning July 1, 1977, the staff of the Air Quality Program will decrease to 6.2. This is a result of reapportion of 1.6 (full-time-equivalent) to other offices and a cut of 1.0 (full-time-equivalent) due to legislative appropriations.

The Department of Environmental Protection (DEP) has stated that no further changes in staffing levels of the Air Quality Bureau are anticipated to occur within the next five years. The Department will endeavor to curtail staff increases in other environmental areas as well. Therefore, although Air Quality Program responsibilities may increase, no additions in personnel are foreseen to 1982.

The DEP staff has indicated an increase in air program personnel across the state over the next three to five years. A one to two percent per annum increase is projected to fulfill the statewide private sector workforce requirements to 1982.

D. Training and Certification

The Department of Environmental Protection Air Quality Program personnel are certified Smoke Readers. South Dakota does not operate a Smoke Readers School and, therefore, personnel could attend training in Bismarck, North Dakota, or at the U.S. Environmental Protection Agency (EPA), Region VIII, Denver, Colorado. When possible and with regard to curtailed out-of-state travel funds, the DEP staff participate in other U.S. EPA training courses. Table II details training and certification activities for Fiscal Year 1976.

TABLE II

SOUTH DAKOTA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Air Quality Training - FY '76

SPONSOR	LENGTH	PROGRAM	NUMBER TRAINED	NUMBER CERTIFIED
U.S. EPA	3 days	Smoke Readers School	10 (ave.)	10 (ave.)
U.S. EPA (Denver)	4 days	Control of Particulate Emissions	3	N/A
U.S. EPA (Dallas)	4 days	Control of Particulate Emissions	1	N/A
U.S. EPA (Atlanta)	3 days	Air Pollution Field Enforcement	3	N/A
U.S. EPA (New York)	3 1/2 days	Legal Aspects for Control Agency Decision Makers	1	N/A

E. Career Potential

Occupational availabilities in air pollution control and abatement will be limited in South Dakota during the next three to five years. Career opportunities at the state level will be scarce, mostly turnover replacements, as the staffing levels are thought to have reached their maximum. Opportunities will be on the degreed part, will be in private industry.

F. Conclusion

South Dakota is neither heavily industrialized nor densely populated. Air pollution control and abatement problems are not as numerous as in other states. However, energy resource development in the neighboring states of Montana, Wyoming, and North Dakota will give rise to potential air pollution problems for the state. The winds in this area may carry pollutants resulting from mining operations, coal fired generator plants, and/or coal gasification or liquefaction plants into South Dakota. Therefore, although coal development is not forecast for South Dakota, mining activities carried on outside of the state may well add to the responsibilities of the Department of Environmental Protection, Air Quality Program.

II. NOISE

A. Introduction

The State of South Dakota to date has developed no programmatic responsibility for noise pollution control and abatement at the state level. The population of the state is 665,507, a density of 8.8 persons per square mile. Although manufacturing is increasing statewide, South Dakota remains an agriculturally based, non-industrialized area. The need for legislation and a state noise program have not been demonstrated successfully as yet in South Dakota.

B. Workforce Profile

Currently there is no workforce at the state level. The Department of Environmental Protection (DEP) is available to give a limited amount of technical advice regarding environmental noise. The U.S. EPA has two noise abatement programs, ECHO and Quiet Communities Program. Communities interested in these programs are encouraged to contact the DEP or the EPA.

Municipal programs across the state are non-existent with the exception of two communities which have established ordinances. Table III, on the following page, details municipal noise ordinances in South Dakota as currently (1976) established.

TABLE III

STATE OF SOUTH DAKOTA

Municipal Noise Ordinances
(1976)

COMMUNITY		ORDINANCE								TOTAL		
		Aircraft	Building	Construction	Nuisance	Railroad	Vehicle	Rec./Vehicle	Zoning	a	b	
Lemmon							a			1	0	1
Sioux Falls							b		b	0	2	2
TOTAL (State)	a	0	0	0	0	0	1	0	0	1	0	1
	b	0	0	0	0	0	1	0	1	0	2	2
		0	0	0	0	0	2	0	1	1	2	3

KEY: a = regulation includes accoustical criteria;
b = regulation does not include accoustical criteria.

SOURCE: Sound and Vibration, December 1975.

As depicted in the above table, Lemmon currently has an ordinance regarding vehicles which includes acoustical criteria. Sioux Falls with a 1970 population of 72,488 has municipal noise ordinances relative to zoning and vehicles. These ordinances, however, do not include acoustical criteria and therefore, enforcement becomes exceedingly difficult as the regulations are nonquantitative. The local ordinances are enforced

by local law enforcement authorities. To date, there are no local noise pollution control and abatement personnel other than the law enforcement authorities.

C. Workforce Projections

Within the next three to five years the establishment of a state level noise program is described by state officials as unlikely. However, with the passage of legislation, personnel would be assigned in order to establish a program. Projections of workforce requirements are premature at this time.

D. Training and Certification

Training in the area of environmental noise appears to be unavailable in the state at this time. Presently the workforce profile is such that certification is not required. Persons demonstrating an interest in the noise pollution control and abatement field would probably be required to seek educational certification and training outside the state. Should the state create a program, the initial personnel would, more than likely be imported from other states as South Dakota appears at present to lack facilities and/or programs for training in this field.

E. Career Potential

Career opportunities must be described as exceedingly limited for the next three to five years. With the establishment of a state level program, competition would be quite high were persons properly qualified

to be identified within the state. It appears likely that job opportunities in South Dakota in the environmental noise field will be scarce at least for the ensuing few years.

F. Conclusion

The U.S. Environmental Protection Agency desires to encourage the establishment of a noise pollution control and abatement program in South Dakota. However, the need for such a program has not been sufficiently demonstrated, as yet, to encourage the necessary interest on the part of state personnel or the general citizenry. State officials express the opinion that relatively little effort will be made within the state to establish a state noise pollution control and abatement program, at least in the near future.

III. PESTICIDES

A. Introduction

The South Dakota Department of Agriculture, Division of Agricultural Regulations & Inspections has been allocated the major responsibility for the environmental area of pesticides control. Authority is granted in "Chapter 38-21 Agricultural Pesticide Application" and regulations "Article 12:56 Pesticides."

Although the Department of Agriculture is responsible for the implementation of the certification program as well as other pesticide related activities in South Dakota, there are additional state agencies which are involved cooperatively with the Department. The South Dakota Department of Environmental Protection and the South Dakota State University Extension Service are two such agencies.

The Department of Agriculture offers technical assistance and cooperation to Indian reservations within the state regarding training and certification of applicators. Expertise regarding Integrated Pest Management (IPM) is available upon request to all citizens of South Dakota.

B. Workforce Profile

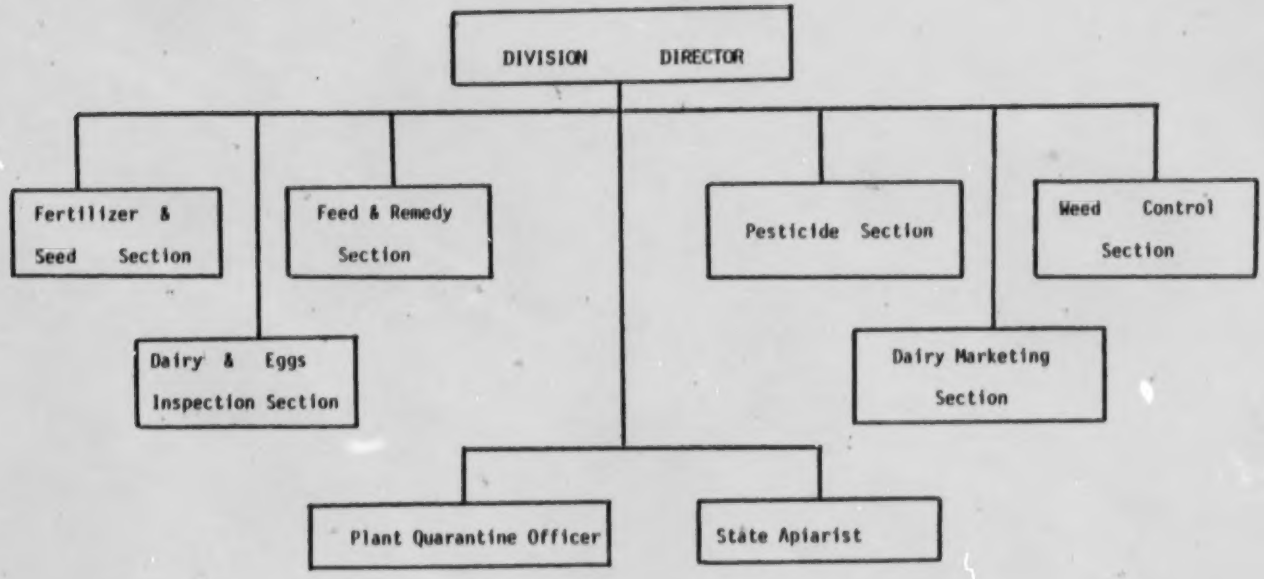
The Department of Agriculture, Division of Agricultural Regulations & Inspections, maintains a staff of 30 full-time and six part-time employees. However, the total manpower effort for the area of pesticides is nine persons, an increase of one from 1975. The following table details the current Department of Agriculture personnel allocated to pesticides control.

STATE OF SOUTH DAKOTA

DEPARTMENT OF AGRICULTURE

DIVISION OF AGRICULTURAL REGULATIONS & INSPECTIONS

Figure 5



Presently there are approximately 370 firms and 3,300 labels under pesticide registration. The state laboratory in Vermillion conducts the chemical analyses of pesticides.

TABLE IV

SOUTH DAKOTA DEPARTMENT OF AGRICULTURE

Division of Agricultural Regulations & Inspections
Current (1976) Staffing Level - Pesticides

Position	1976	%/annum turnover (average)
Pesticides Program Specialist	1	50%
Inspector	5	30%
Certification Coordinator	1	20%
Secretarial	2	N/A
TOTAL	9	N/A

The turnover rate is high within the Department as is true of some other state agencies in South Dakota. The personnel are qualified and usually young in years. However, the salary levels for personnel are low by comparison with salaries in neighboring states.

The following table details the current pesticides workforce in the state.

TABLE V

SOUTH DAKOTA PESTICIDES PERSONNEL
Current (1976) Staffing Level (est.)

Category/Position		1976	%/annum turnover (average)
Commercial Applicators	Aerial		8%
Agricultural Pest-Plant	120	542	
Agricultural Pest-Animal	67	151	
Forest Pest Control	21	47	
Ornamental Turf	0	82	

TABLE V

(continued)

Category/Position		1976	%/annum turnover (average)
Commercial Applicators	Aerial		
Seed Treatment	0	13	
Aquatic	7	18	
Right-of-way	28	192	
Industrial, Institutional, Structural & Health	0	68	
Public Health	0	27	
Regulatory	11	26	
Demonstration & Research	10	32	
Rodent, Predatory, & Bird Pest Control	25	84	
Private Applicators		22,000	N/A
County Agents		67	*
Other[1]		8	*
TOTAL		23,360	N/A

* unavailable

[1] includes Pesticides Coordinator, Pesticides Secretary.

SDCL 38-20 authorizes the department to cooperate with federal, state and local public, and private agencies in the suppression and control of unprotected birds and non-game animals which may be injurious to agriculture. The Department supplied 65,940 pounds of poison materials to the county programs of South Dakota, North Dakota, Wyoming, and Nebraska during FY 1974. With the advent of the federal government banning the use of 1080 poison, extensive increases in prairie dog acreage have occurred. Predator control activities are conducted by the Department of Agriculture and the Department of Game, Fish and Parks in the sheep producing areas of western South Dakota.

C. Workforce Projections

Department personnel feel that the major increases in the pesticides workforce have occurred. Minimal growth is anticipated at the state level while a two percent per annum increase in commercial applicators will take place to 1980 at which time the workforce requirements will remain stable for the ensuing two to three years. There should be no increase in the private applicator category.

TABLE VI

STATE OF SOUTH DAKOTA

Pesticide Personnel
Workforce Projection to 1982 (est.)

Position	1976	1977	1978	1979	1980	1981	%/annum turnover (average)	%/annum growth (average)
Commercial Applicators	1285	1311	1337	1364	1391	1391	8%	2 %
Private Applicators	22000	22000	22000	22000	22000	22000	N/A	0 %
County Agents	67	67	67	67	67	67	*	0 %
Other[1]	8	8	8	8	8	8	*	0 %
	23360	23386	23412	23439	23467	23467	N/A	1 %

* unavailable

[1] includes Pesticides Coordinator, Pesticides Secretary.

D. Training and Certification

The training for pesticides personnel seeking certification for restricted use pesticides is being conducted by the South Dakota State University Extension Service. The Extension Service is responsible for preparation of training materials, courses and examinations. All training devices (manuals and other materials) are distributed through the Extension Service.

Certification of commercial applicators is obtained by successful completion of a written open book examination. Recertification is required and obtained through the same means every two years, or by means of attendance at an approved short course.

Certification of private applicators may be accomplished by means of one of four options:

- Single purchase/single use procedure.
- Completion of Extension Service sponsored training sessions.
- Completion of auto-tutorial material.
- Completion of an EPA developed vocational agricultural course with a passing score.

Recertification is required every five years under all of the above options with the exception of the single purchase/single use procedure.

To date, the State of South Dakota has trained approximately two-thirds of the commercial applicators and approximately 23% of the private applicators.

E. Career Potential

Career opportunities at the state level will be limited over the next three to five years. Job openings will be more numerous at the applicator level. The applicator category is usually marked by a high turnover rate. Many of these jobs are seasonal in nature and characterized by meager salary and lack of upward mobility. However, of commercial applicators who will be certified in South Dakota, approximately one-third will be aerial applicators. These occupational characteristics are greatly lessened in the aerial applicator category.

F. Conclusion

The pesticides related workforce in South Dakota is described by Department of Agriculture personnel as stable at present. Forecasts over the period 1976-1981 are quite conservative as few areas of increase are envisioned for South Dakota. Public and private sector growth will be low. Needs exist for research and for persons with pesticide container disposal expertise. However, these areas may not be easily funded. The programs involving Integrated Pest Management (IPM) may develop in South Dakota over the next few years. Should this occur, professional expertise in the area of IPM would be in demand. Careers in this area may also develop as a result of increasingly stringent federal and state regulations.

IV. POTABLE WATER

A. Introduction

South Dakota has an abundant supply of water in the Missouri River behind four mainstem dams. This water, however, is not available to the majority population. With the exception of the Black Hills, much of the water available in the western part of the state is of low quality. Most of the other rivers often experience intermittant flow.

South Dakota has 16 major drainage basins as seen in Figure 6 on the following page. The U.S. Corps of Engineers have built four major dams as part of the Missouri River Basin project. This project was authorized under the federal Flood Control Act of 1944.

The Lake & Reservoir Assessment, Cogger, Payne and Sprenger, U.S. Environmental Protection Agency, Region VIII, August, 1976, identifies six major lakes and reservoirs in the state which are utilized as drinking water supplies. They include Oahe Reservoir, Francis Case Lake and Lewis and Clark Reservoir, components of the Missouri River Basin project; as well as Mitchell Lake, Kampeska Lake and Willow Creek Reservoir.

B. Workforce Profile

The responsibility for the environmental area of potable water has been allocated to the Department of Environmental Protection, Office of Water Hygiene. The Office of Water Hygiene is primarily concerned with drinking water and swimming pools. Legislative authorization for fluoridation of drinking water is found in SDCL 34-24A, and the Program overall utilizes four main regulations:

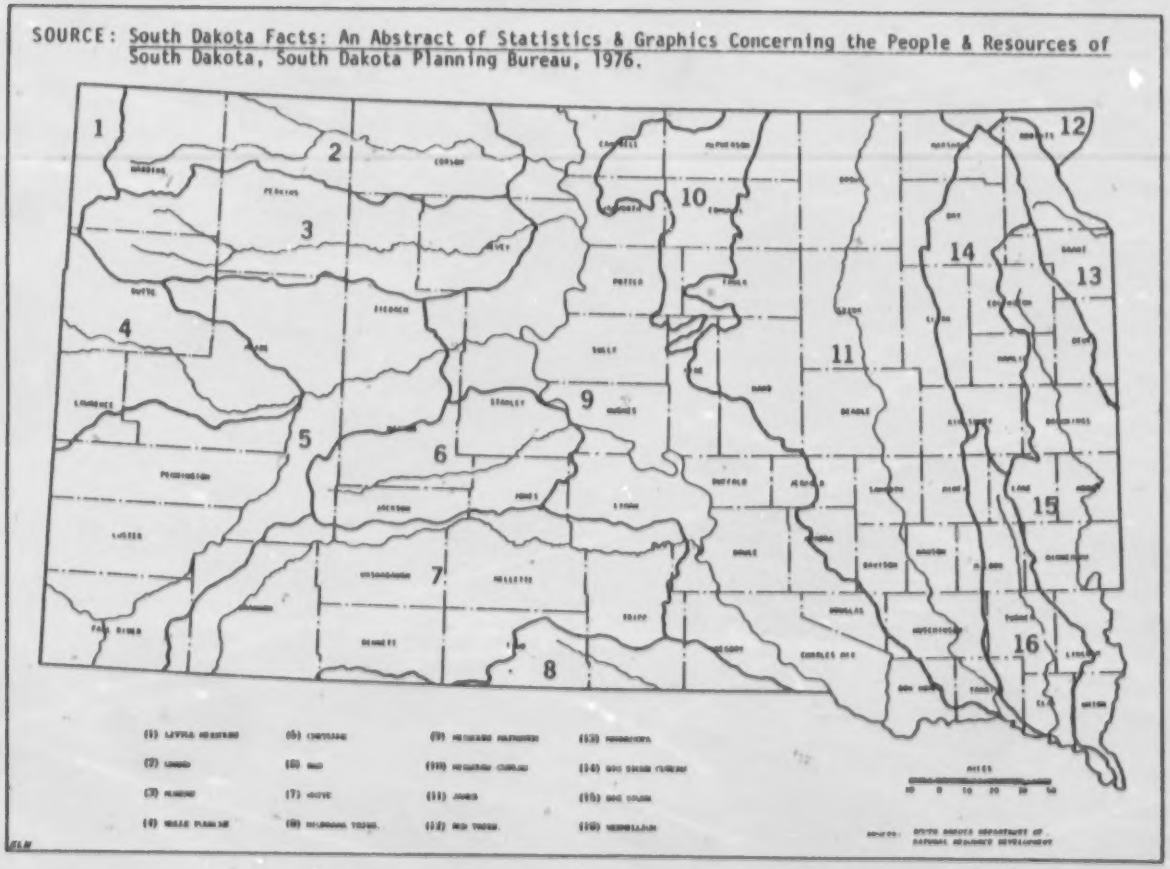


FIGURE 6: SOUTH DAKOTA, MAJOR DRAINAGE BASINS

- approval of plans and specifications for public water supply systems;
- fluoridation of municipal systems;
- bulk water haulers; and,
- bacteriological sampling of municipal water supplies.

The following table details the current workforce of the Office of Water Hygiene.

TABLE VII

SOUTH DAKOTA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Office of Water Hygiene
Current (1976) Staffing Level

Position	1976	%/annum turnover (average)
Program Director	1	0%
Environmental Engineer	2	5%
Sanitarian	1	5%
Training Officer	1	0%
Environmental Technician	1	5%
Secretarial	2	N/A
TOTAL	8	N/A

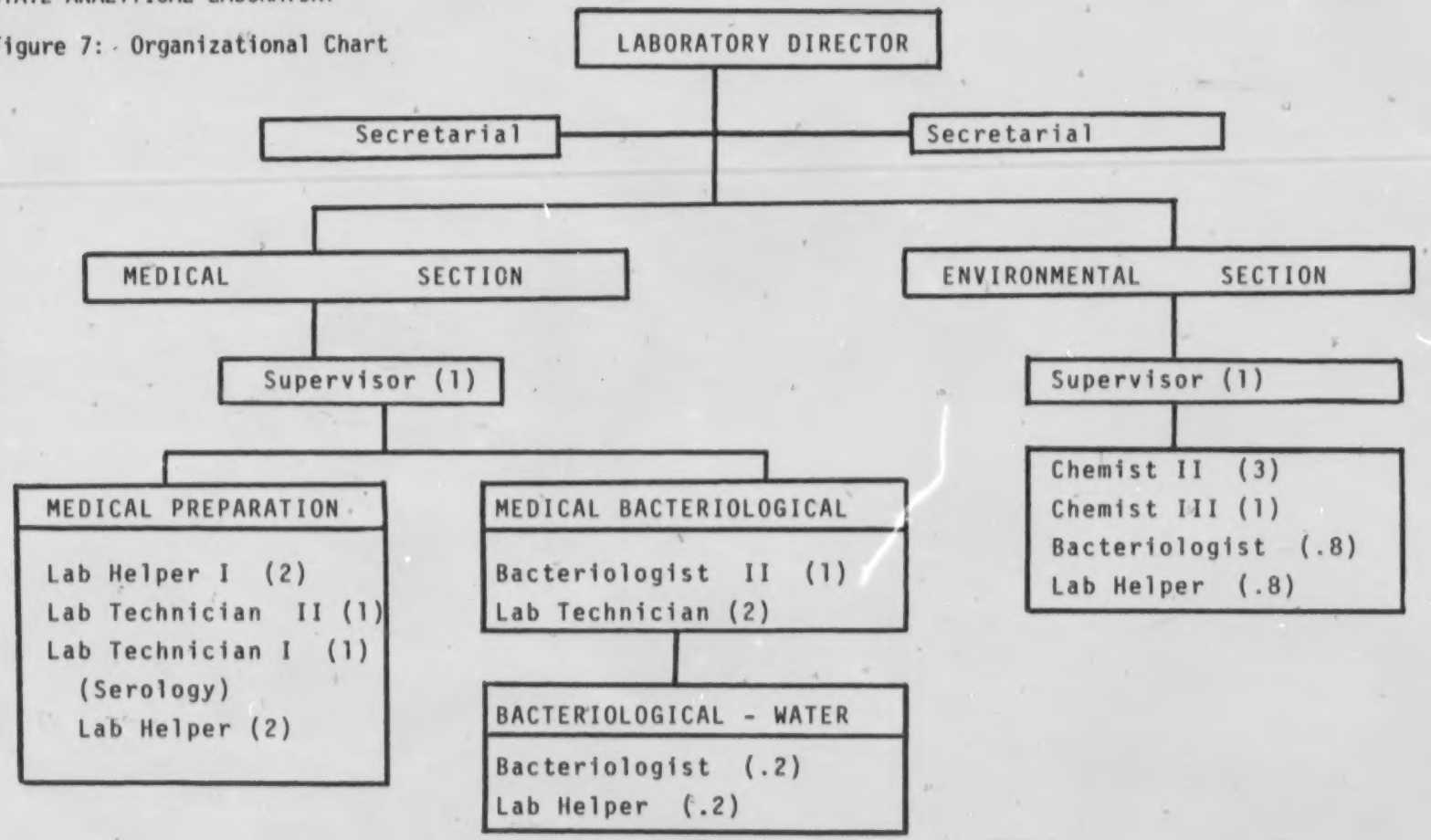
The above table includes the State Training Officer who allocates approximately 50% of his time to the area of water quality (wastewater).

Presently, under the state regulations, fluoride concentrations in public water supplies serving populations of 500 people or more are tested. Bacteriological quality also is tested but these are not enforceable standards. The State Analytical Laboratories conduct the bacteriological tests, which in fiscal year 1976, numbered 32,176. An organizational chart for the Analytical Laboratory is presented on the following page.

STATE OF SOUTH DAKOTA

STATE ANALYTICAL LABORATORY

Figure 7: Organizational Chart



44

Illustrated below is the current (1976) workforce profile of the South Dakota Analytical Laboratory. The overall lab staff is composed of 20 full-time equivalent persons at this time which is a 5% decrease from fiscal year 1975. Detailed in the following table are the personnel allocated to the Environmental Section.

TABLE VIII

SOUTH DAKOTA STATE ANALYTICAL LABORATORY

Environmental Section
Current (1976) Staffing Level

Position	1976	%/annum turnover (average)
Section Supervisor	1	0%
Chemist	4	5%
Bacteriologist	1	5%
Laboratory Helper	1	*
Secretarial	1	N/A
TOTAL	8	N/A

* unavailable

The Department of Environmental Protection has estimated that currently there are 39 to 41 public water systems serving over 1,500 population which have certified operators. Further, there are 67 to 83 public water systems serving 500 to 1,500 population with certified operators. These described public supplies service approximately 51% of the state's population. In addition, 156 systems have been identified which service populations of less than 500. Approximately 7% of these smaller systems have certified operators.

Table IX details the present certified operator workforce across the state.

TABLE IX

STATE OF SOUTH DAKOTA

Water Supply & Distribution Plant Personnel
Certified Operators
Current (1976) Staffing Level

Class	(a)	(b)	(c)	1976	%/annum turnover (average)
I	84	63	9	156	30%
II	48	24	1	73	20%
III	33	0	1	34	10%
TOTAL	165	87	11	263	20%

(a) Systems over 1,500 population;
(b) Systems of 500-1,500 population;
(c) Systems under 500 population.

C. Workforce Projections

The Department of Environmental Protection estimated staff increases in the Office of Water Hygiene in order to meet the workforce requirements to 1982. For the most part, these increases were predicated on the state's assuming primary enforcement responsibility for the Safe Drinking Water Act. The 1977 Legislature, however, denied the authority for the DEP to administer the SDWA. Pursuant to this action on the part of the Legislature, the DEP projected few changes in the composition of the Office of Water Hygiene staff over the next three to five years. The following table (Table X) reflects the workforce projections to 1982.

TABLE X

SOUTH DAKOTA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Office of Water Hygiene
Workforce Projections to 1982 (est.)

Position	1976	1977	1978	1979	1980	1981	%/annum turnover (average)	%/annum growth (average)
Program Director	1	1	1	1	1	1	0%	0%
Environmental Engineer	2	2	2	2	2	2	5%	0%
Sanitarian	1	1	1	1	1	1	5%	0%
Training Officer	1	0	0	0	0	0	0%	-20%
Environmental Technician	1	1	1	1	1	1	5%	0%
Secretarial	2	2	2	2	2	2	N/A	0%
TOTAL	8	7	7	7	7	7	N/A	-3%

The positions of Sanitarian and Training Officer will be decreased by 1.6 (full-time-equivalent) due to 1977 Legislative cutbacks.

The following table depicts the best professional estimations of projected workforce requirements to 1982 for the State Analytical Laboratory, Environmental Section. These projected figures are based, in part, on the state's assumption of primary enforcement responsibilities. The overall lab staff is anticipated to increase at an average per annum rate of 8%. Without the added responsibilities inherent in the state's assuming "primacy", however, the Environmental Section should still sustain this rate of growth.

TABLE XI

SOUTH DAKOTA STATE ANALYTICAL LABORATORY

Environmental Section
Workforce Projections to 1982 (est.)

Position	1976	1977	1978	1979	1980	1981	%/annum turnover (average)	%/annum growth (average)
Section Supervisor	1	1	1	1	1	1	0%	0%
Chemist	4	4	6	6	6	6	5%	10%
Bacteriologist	1	1	2	2	2	2	5%	20%
Lab Helper	1	1	1	1	1	1	*	0%
Secretarial	1	1	1	1	1	1	N/A	0%
TOTAL	8	8	11	11	11	11	N/A	8%

* unavailable

The following table illustrates workforce projections to 1982 for certified operators of water supply and distribution systems across the state. The projected workforce requirements are the result of the best professional judgements of state DEP personnel.

TABLE XII

STATE OF SOUTH DAKOTA

Water Supply & Distribution Plant Personnel
Certified Operators
Workforce Projections to 1982 (est.)

Class	1976	1977	1978	1979	1980	1981	%/annum turnover (average)	%/annum growth (average)
I	156	164	172	180	189	198	30%	5%
II	73	76	80	84	88	92	20%	5%
III	34	35	37	39	41	43	10%	5%
TOTAL	263	275	289	303	318	333	20%	5%

D. Training and Certification

The present training for water operators in the state consists primarily of short courses. Approximately 30 to 75 persons per year receive water related training usually over a two-day period. Operations and maintenance training is ongoing throughout the year in South Dakota. These are one-to-one situations between the operator and the Training Officer at the job site. Ordinarily these sessions are of one day duration. An increase in training activity is not anticipated over the next few years without allocation of increased funds. The training staff have expressed the opinion, however, that most operators need upgrade training.

The Department of Environmental Protection (DEP) has developed a programmed Learning Package for Water Plant Operators. This training package has been designed for South Dakota Class I and Class II operators to assist in the operator's preparation for certification. This programmed package is also beneficial to operators in the field who are desirous of upgrading. The package includes the following water-specific subject materials:

- Basic Math for Operators;
- Study Guide for Water Treatment Plant Operators;
- Basic Water Treatment Chemistry; and,
- Manual of Instruction for Water Treatment Plant Operators.

E. Career Potential

Job opportunities will be available in the water related fields. The career potentials, however, will be limited as little growth has

been projected for this environmental area. Operators will be required for upgraded plants. They will need certification and increasingly up-graded skill levels as the years progress.

Career opportunities at the degreed and professional level will also be available over the next three to five years, but on an even more limited basis than the non-degreed, non-professional levels.

F. Conclusion

The primary goal of the Office of Water Hygiene is to assure the citizenry of South Dakota safe and available drinking water. The Office of Water Hygiene offers a continuous surveillance program for state and Indian water supplies, for public water supplies, and for bulk water haulers. Surveillance of swimming pool operations and maintenance are also an integral part of the program. Whenever possible, technical assistance is extended upon request.

As of August 1976, the DEP Office of Water Hygiene declared that there were 23 communities in the state with unsatisfactory bacteriological test results of their drinking water supplies. The DEP also reported that some communities have failed in their efforts to forward water samples to the Department for testing. The Office of Water Hygiene is continuing efforts to encourage communities to upgrade their systems, hire properly trained and certified personnel and to utilize the Department and the Analytical Laboratory more advantageously. The task of attracting properly trained and certified personnel, however, remains quite difficult due to low salaries.

Although South Dakota indicated intentions to assume primary enforcement responsibility for the Safe Drinking Water Act (SDWA), the 1977 Legislature denied the authority. The Department of Environmental Protection, however, will continue to support primacy in the future.

V. RADIATION

A. Introduction

In 1957, SDCL 34-21 mandated responsibility for the prevention of unnecessary human radiation exposure in the State of South Dakota to the Department of Health. Pursuant to this, the Radiological Health Hazards program was established. This program is primarily concerned with X-ray installations in medical and dental facilities. These facilities and activities related thereto are the major component of the South Dakota state radiation control and abatement program.

The Department of Environmental Protection (DEP) is becoming more involved in the area of environmental radiation control. At present, although statutory authority for the DEP covers radionuclides in water, areas of involvement include uranium mining and nuclear wastes disposal. The DEP provides technical assistance and review and analysis with respect to these areas of involvement.

Few radiation control problems currently exist in South Dakota. Drawing increased attention from citizens is the Edgemont uranium ore mine. This mine was active during the mid 1950s and the early 1970s. The Tennessee Valley Authority (TVA) is awaiting the results of a feasibility study to determine whether mining and milling operations should be resumed. Of at least equal importance and interest to the people of South Dakota is the investigation of the uranium tailings piles at Edgemont. Determination is being made as to public health hazards caused by radiation from these piles. Further complications and problems will follow should the TVA

decide to resume uranium ore processing in the small Edgemont community. Prior to resumption of mining and milling activities, the Nuclear Regulatory Commission (NRC) as the licensing agency will prepare an Environmental Impact Statement.

B. Workforce Profile

The present staff allocated to the Radiological Health Hazards program consists of two full-time professionals as seen on the following table.

TABLE XIII

SOUTH DAKOTA DEPARTMENT OF HEALTH

Division of Health Services
Radiological Health Hazards Program
Current (1976) Staffing Level

Position	1976	%/annum turnover (average)
Radiation Specialist	1	0%
X-ray Technician	1	0%
TOTAL	2	N/A

The X-ray Technician illustrated in the above table allocates 25% of the time to secretarial duties. The turnover rate presently is zero percent. However, there has been a constant rotation in personnel over the last few years.

Across the State of South Dakota the Department of Health personnel have estimated that approximately 2,000 persons are occupationally involved in the radiation field. These persons are medically related personnel. The South Dakota Department of Labor estimates that approximately 300 or 1.5% of this total is composed of Radiological Technologists. The

following table details the number of persons occupationally exposed to radiation in the state.

TABLE XIV

STATE OF SOUTH DAKOTA

Personnel Occupationally Exposed to Radiation (1975)

Source	# of X-ray units registered	# of Radiation Exposed Persons (Occupationally) Est.
Hospitals	121	233
Medical Offices	117	846
Osteopaths	8	40
Chiropractors	74	214
Podiatrists	7	7
Dentists	397	622
Veterinarians	26	276
Other	5	5
TOTAL	755	2,233

SOURCE: South Dakota Radiation Control Program, Department of Health.

C. Workforce Projections

The table below illustrates the workforce projections to 1982 for the Department of Health, Radiological Health Hazards Program. Minimal growth is anticipated for the medical/dental radiation personnel in South Dakota over the next three to five years.

TABLE XV

SOUTH DAKOTA DEPARTMENT OF HEALTH

Division of Health Services
Radiological Health Hazards
Workforce Projections to 1982 (est.)

Position	1976	1977	1978	1979	1980	1981	%/annum turnover (average)	%/annum growth (average)
Radiation Specialist	1	1	2	2	2	2	0%	20%
X-ray Technician	1	1	1	1	2	2	0%	20%
Secretarial	0	0	1	1	1	1	N/A	20%
TOTAL	2	2	4	4	5	5	N/A	25%

Projections in Table XV were based, in part, on the assumption that state activities relative to the uranium mine at Edgemont would increase when the mine was reopened. It is highly unlikely, however, that the TVA or the Nuclear Regulatory Commission (NRC) will relinquish any supervisory responsibilities to South Dakota at this time.

D. Training and Certification

Training is accomplished by the Department of Health personnel during on-site inspection visits. The Radiological personnel utilize inspection visits in order to apply corrective techniques in specific circumstances. Currently there is no formal training conducted by the Department.

The Radiological staff usually attends one or two sessions for upgrade and/or inservice training each year. These sessions are normally two days in duration. The staff also attends one regional meeting in Denver which is sponsored by the U.S. Environmental Protection Agency.

E. Career Potential

Career opportunities in the field of radiation control will be available on a limited basis in South Dakota during the next three to five years. The turnover rate for X-ray personnel in medical/dental offices can be relatively high due to youth and lack of post-secondary educational training. Often these positions, while related to the field of radiation, require less than adequate training prior to job entry.

Professional engineering and scientific medical/dental related career opportunities will be available during this same period. Extensive openings however, are not foreseen for the state. New careers will, most likely, not emerge in the radiation control field in South Dakota.

F. Conclusion

South Dakota is currently (1976) not an "Agreement State." This term refers to an agreement between a state and the Nuclear Regulatory Commission (NRC) in which certain of the Commission's responsibilities are transferred to the state under the terms of Section 274 of the Atomic Energy Act of 1954.

South Dakota indicates that exposure to the citizenry from the atomic energy industry and weapons testing is insignificant when compared to the exposure from medical/dental uses. However, everyone is exposed to natural radiation every day of their lives. Therefore, although radiation exposure from man's activities such as the nuclear fuel cycle, weapons testing, etc., is of a lesser degree than medical/dental exposure, there is growing concern over the potential of increased exposure from the nuclear fuel cycle.

In South Dakota, the state program emphasizes activities relating to X-ray machine installations and facilities, as the NRC is currently responsible for the other than medical uses of radiation and radioactivity

Although medical/dental X-ray activities are the mainstay of the South Dakota program at present, increased responsibilities may emerge if the state should become a "corridor or pass-over state" for transportation of hazardous and/or nuclear wastes to disposal sites in other areas. This occurrence would, more than likely, change the program approach and affect workforce projections for the Department of Health program. The DEP will most likely become more involved with the area of radiation control as uranium mining and milling and nuclear wastes disposal become increasing areas of concern to South Dakota.

VI. SOLID WASTE

A. Introduction

Among the major concerns of the State of South Dakota regarding solid waste management are: (1) open and burning dumps; (2) the allocation of monies to the local level for areawide planning; and (3) the identification of toxic and/or hazardous wastes sites. The statewide solid waste management program is conducted by the Department of Environmental Protection (DEP). Solid Waste Management and the Air Quality programs have been combined and together compose one of the three DEP components.

In South Dakota there are approximately 390 waste disposal sites. Of these, 29 are described as sanitary landfills. According to "Solid Waste Systems", November 1976, seven are private (25%) and 22 are public (75%). The South Dakota private sector composes a larger percentage of the solid waste management industry than in most of the other Rocky Mountain prairie states. However, the majority (75%) of the landfills are public, illustrating the fact that solid waste management, at least in the near future, will remain the responsibility of public officials.

B. Workforce Profile

The Solid Waste Management program of the Department of Environmental Protection provides technical assistance to communities, administers assistance to communities, administers grant monies for local governmental financial assistance for the construction and operation of solid waste systems, and spearheads anti-litter programs statewide.

The following table details the current workforce of the Solid Waste Management program. The current (1976) staffing levels depicted below are equivalent to the 1975 staffing level.

TABLE XVI

SOUTH DAKOTA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Office of Air Quality & Solid Waste Management
Solid Waste Management Program
Current (1976) Staffing Level

Position	1976	%/annum turnover (average)
Program Director	1	0%
Environmental Engineer	1	1%
Environmental Sanitarian	1	15%
Secretarial	2	N/A
TOTAL	5	N/A

The table above illustrates the current staffing level of the Solid Waste Management Program. In addition, there are 2.0 full-time-equivalents assigned to regional offices who are not included in Table XVI.

C. Workforce Projections

The Solid Waste Management Program is expected to experience increases in staffing levels over the next three to five years. The following table depicts workforce projections to 1982. With the passage of the Resource Conservation and Recovery Act (RCRA), however, these figures may be increased in order to fulfill the new responsibilities. Information regarding the impact of this Act was not available at the time of this writing, however.

TABLE XVII

SOUTH DAKOTA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Office of Air Quality & Solid Waste Management
Solid Waste Management Program
Workforce Projections to 1982 (est.)

Position	1976	1977	1978	1979	1980	1981	%/annum turnover (average)	%/annum growth (average)
Program Director	1	1	1	1	1	1	0%	0%
Environmental Engineer	1	1	1	1	2	2	1%	20%
Environmental Sanitarian	1	2	2	2	2	2	15%	20%
Secretarial	2	2	2	2	2	2	N/A	0%
TOTAL	5	6	6	6	7	7	N/A	7%

The DEP number statewide solid waste personnel at approximately 200. Professionals in the field have estimated that this workforce may experience a three to five percent per annum increase over the next five years. Solid waste/hazardous waste and toxic substances is expected to be the growing environmental area of concern in South Dakota according to DEP personnel.

D. Training and Certification

At this time there is no certification of solid waste management personnel in the state. Training, for the most part, consists of education of the state's citizenry. Articles appear in Earth Bound, the DEP publication, at regular intervals and address a multitude of subject matters in order to heighten the public's awareness of solid waste related problems and activities across the state.

Numerous short courses of approximately one to two days duration are presented mostly by organizations within the state. Out-of-state travel has been severely curtailed and, therefore, training sessions held outside of South Dakota are rarely attended by the DEP personnel.

The Old West Regional Commission has awarded a grant to the South Dakota Department of Environmental Protection for the training of solid waste operators. South Dakota will be the administrator of this grant to begin in July, 1977. Under the grant, training will be provided to all of the states in the Old West Regional Commission. These states include North Dakota, Nebraska, Wyoming and Montana as well as South Dakota.

E. Career Potential

Career opportunities will be available from the non-degreed through the degreed levels to 1982 in South Dakota. These availabilities will be limited, however. The areas of resource recovery and hazardous and/or toxic wastes should present the largest number of job offerings over the next few years.

F. Conclusion

The Solid Waste Management program in South Dakota will face increasing challenges over the next five years. The state has expressed concern over the possibility of becoming a nuclear disposal site. Hazardous and/or toxic waste disposal will present the state staff as well as the public with added responsibilities.

In response to the additional program responsibilities and activities, more stringent enforcement is anticipated. Workforce levels, however, are anticipated to experience only moderate increases.

An increase in on-site training of operator personnel would be desirable, but also quite costly for the state staff to facilitate. In addition

to the Old West Regional Commission grant, needed training might be presented in self-instructional packages. In the sparsely populated areas of the state instructional packages of this nature would be particularly beneficial.

The 1977 Legislature passed Senate Bill 105 which allows burning under certain conditions (municipalities under 5,000) as an acceptable means of solid waste management. This bill will become law July 1, 1977, and may affect the number of sanitary landfills presently in operation. The DEP plans for new landfills may also be affected by this bill.

VII. WASTEWATER

A. Introduction

The responsibility for the environmental area of wastewater in South Dakota has been allocated to the Department of Environmental Protection, the Office of Water Quality. The Office of Water Quality monitors and protects the lakes and waterways of the state. This DEP office administers the federal water quality regulations and utilizes three state regulations which include: (1) state surface water quality standards which maintain the assigned beneficial use(s) for particular waterways and also set the levels for maximum pollutants; (2) construction grant regulations establish criteria for allocating grant funds (construction) for municiapl wastewater treatment plants and pollution control facilities for livestock; and (3) set the specifications for location and conditions of operation of private sewage disposal systems, (systems or facilities used for treating, neutralizing, stabilizing or disposing of waste which is not part of, or conencted to a public system). A major responsibility of the Office of Water Quality is the administration of Section 208 of the Federal Water Pollution Control Act (FWPCA). The 208 program responsibilities include non-point source pollution control and water management planning.

Supportive of the Office of Water Quality is the quasi-legislative, quasi-judicial Board of Environmental Protection. This Board issues rules governing water quality standards across the state.

B. Workforce Profile

The Department of Environmental Protection, Office of Water Quality administers a number of responsibilities which compose the wastewater pollution control and abatement program of the state. These responsibilities include the following:

- Administration of the state 208 program (non-point source pollution);
- Regulation of point source pollution dischargers, feedlots and sewage disposal systems;
- Licensing of septic tank pumpers;
- Training of wastewater treatment plant operators based upon federal and state water quality regulations;
- Administration of federal construction grants program for municipal facilities and livestock pollution control facilities.

The following table illustrates the present staffing levels for the DEP Office of Waste Quality.

TABLE XVIII

SOUTH DAKOTA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Office of Water Quality
Current (1976) Staffing Level

Position	1976	%/annum turnover (average)
Program Director	1	0%
Environmental Engineer	10	7%
Sanitarian	3	5%
Training Officer	1	0%
Environmental Technician	2	*
Secretarial**	4	N/A
TOTAL	21	N/A

* unavailable
** includes Accounting Assistant & Machine Punch Operator

The Certification Coordinator is depicted on the preceding table in the category Environmental Engineer. Another Supervisory Training Officer, not detailed above, allocates half-time to potable water (refer to Section IV Potable Water) and half-time to wastewater. The current staffing levels illustrated in preceding table are representative of an increase in total program personnel of 10% (two professionals) from 1975.

On the following page an organizational chart is presented which is descriptive of the Office of Water Quality. The following table illustrates the certified operator workforce across the State of South Dakota.

TABLE XIX

STATE OF SOUTH DAKOTA

Wastewater Treatment Plant Personnel
Certified Operators
Current (1976) Staffing Level

Class	(a)	(b)	(c)	(d)	1976	%/annum turnover (average)
I	47	64	11	5	127	30%
II	32	12	0	3	47	20%
III	27	1	0	1	29	10%
TOTAL	106	77	11	9	203	20%

(a) Systems over 1,500 population;
(b) Systems of 500-1,500 population;
(c) Systems under 500 population;
(d) Industrial Systems.

C. Workforce Projections

The present budget for the DEP Office of Water Quality is composed of 60% federal funds. Withdrawal or curtailment of these funds will have a direct impact on the majority of the wastewater program. The following table presents workforce projections to 1982 for the DEP Office of Water Quality.

S O U T H D A K O T A

DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP)

OFFICE OF WATER QUALITY

Figure 8: Organizational Chart

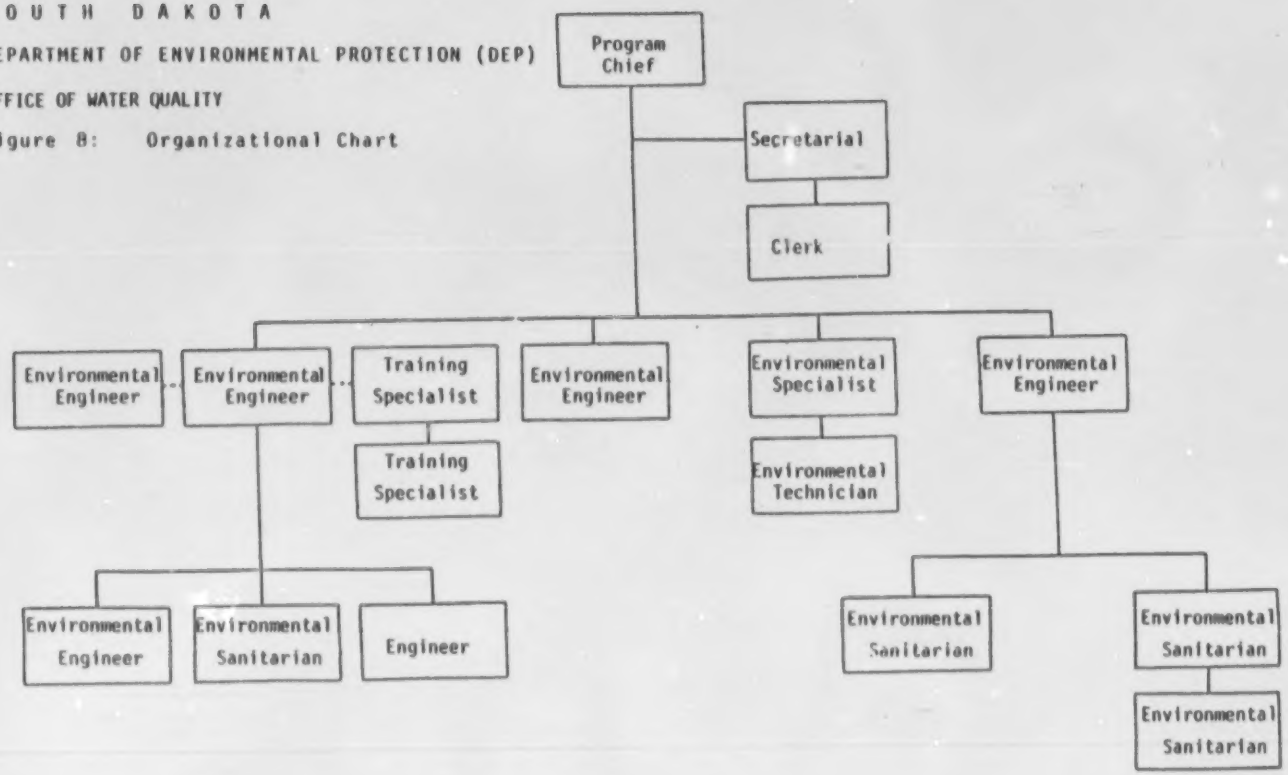


TABLE XX

SOUTH DAKOTA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Office of Water Quality
Workforce Projections to 1982 (est.)

Position	1976	1977	1978	1979	1980	1981	%/annum turnover (average)	%/annum growth (average)
Program Director	1	1	1	1	1	1	0%	0%
Environmental Engineer	10	11	13	14	15	15	7%	9%
Sanitarian	3	3	4	5	6	6	5%	16%
Training Officer	1	1	1	1	1	1	0%	0%
Environmental Technician	2	2	3	3	4	4	*	17%
Secretarial**	4	5	5	5	6	6	N/A	9%
TOTAL	21	23	27	29	33	33	N/A	10%

* unavailable

** includes Accounting Assistant & Machine Punch Operator.

The following table depicts the workforce projections to 1982 for certified wastewater treatment plant personnel across the state of South Dakota.

TABLE XXI

STATE OF SOUTH DAKOTA

Wastewater Treatment Plant Personnel
Certified Operators
Workforce Projections to 1982 (est.)

Class	1976	1977	1978	1979	1980	1981	%/annum turnover (average)	%/annum growth (average)
I	127	133	140	147	154	162	30%	5%
II	47	49	51	53	53	53	20%	3%
III	29	30	31	32	34	36	10%	5%
TOTAL	203	212	222	232	241	251	20%	4%

D. Training and Certification

Currently there are approximately 150 operators per year who are recipients of wastewater treatment training. Primarily this training is accomplished during on-site visitations by the Training Officer. The Waste Water Training Officer often acts in the capacity of a trouble shooter. During on-site operation and maintenance visits, one-to-one training can be accomplished at the operator's own plant. There is also a two-day short course given annually.

The Department has developed a Programmed Learning Package for Waste Water and Water Plant Operators. This training package has been designed for South Dakota Class I and II operators to assist in the preparation for certification, or an upgrade training vehicle. The package includes the following waste water specific course materials:

- Basic Math for Operators;
- Study Guide for Waste Water Treatment Plant Operators;
- Wastewater Stabilization Ponds; and,
- Manual of Instruction for Waste Water Treatment Plant Operators.

Due to budgetary constraints the training staff is quite limited regarding out-of-state travel.

E. Career Potential

Career opportunities in the wastewater field will be available specifically on the certified operator level. Operators will require increasing skills training as plants are upgraded. Degreed level personnel will be represented within the job opportunities in South Dakota over the next five years. Degreed level positions will be limited, however.

F. Conclusion

The Office of Water Quality is the largest program in the Department of Environmental Protection, and federal monies are a major source of funding. In the future, monitoring of streams, rivers and lakes will be accelerated. The lakes of South Dakota have experienced degradation and lake rehabilitation projects will become more common throughout the state at least throughout Fiscal Year 1978. These rehabilitative efforts are being conducted under Section 104 (L) of the Federal Water Pollution Control Act, P.L. 92-500. Several projects have already been funded by the U.S. Environmental Protection Agency with 50% local and/or state funding contributed. These projects include: Lake Cochrane, Lake Kompeska and Oakwood Lakes. Covell Lake and Swan Lake are projects which are under consideration.

Of equal concern and interest to the state is the Oahe Irrigation Unit which may cause soil damage and water quality degradation if agricultural irrigation is planned. The primary concern is increased total dissolved solids (TDS) particularly the constituents of nitrate, sulfate and sodium.

Sioux Falls and the Black Hills have been designated as Area-wide Waste Treatment Management Planning Areas (208 areas). One of the major problems in Sioux Falls appears to be feedlot discharge control methods. The implementation of extensive and sound irrigation practices is an identified problem in the Black Hills and the western area of the state. Non-point source pollution will be a major priority during the next three years.

VIII ENERGY

A. Introduction

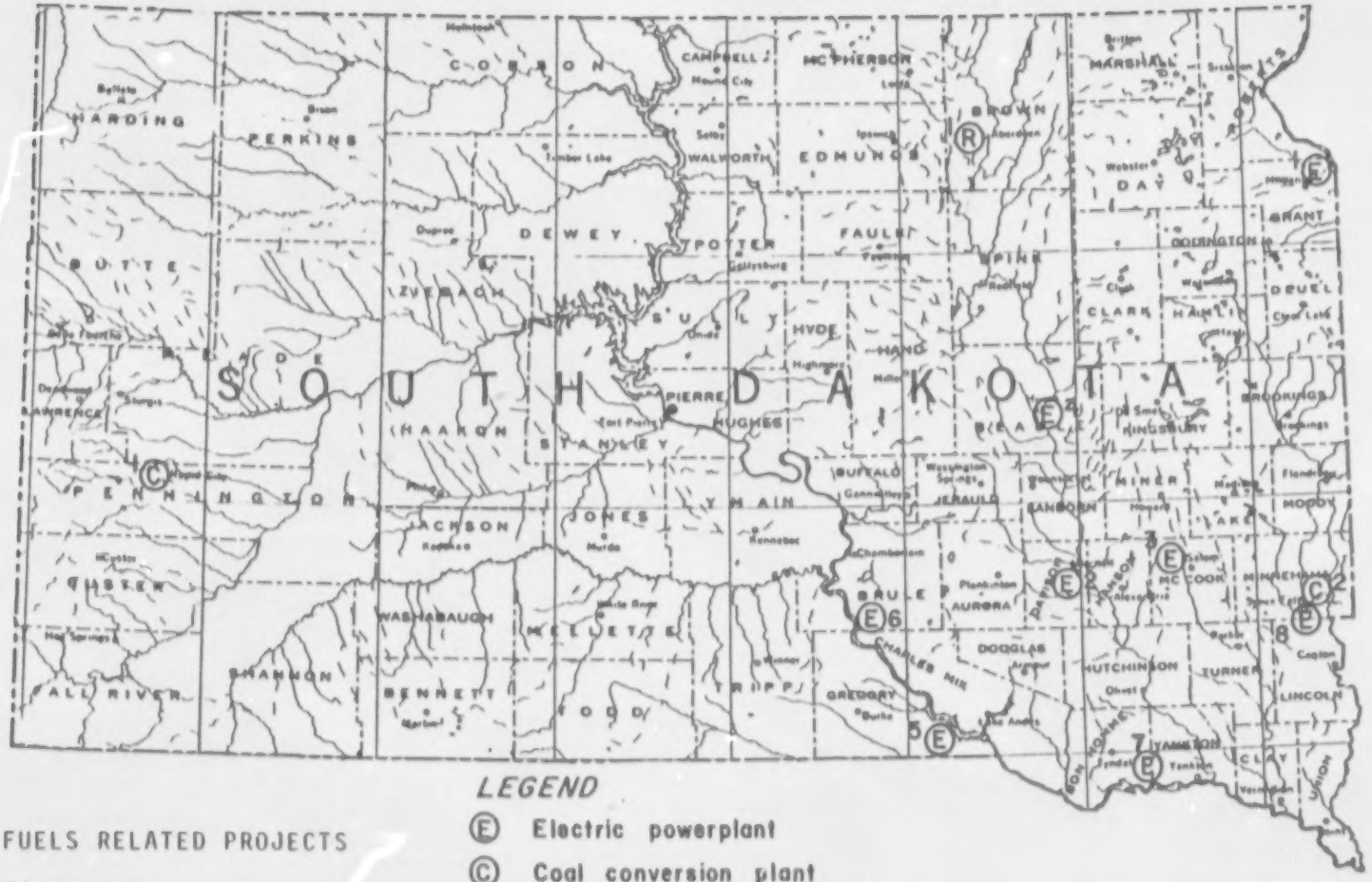
Since 1968 there has been no coal mining conducted in South Dakota. There are thin lignite seams, potentially strip minable, located in the northwestern portion of the state. The Northern Great Plains Resource Program as well as South Dakota state personnel, however, do not project coal production for the state in the near future.

The major natural resource in South Dakota is water which is a constraining factor in energy conversion. As mentioned in previous sections the abundant water in the Missouri River is not available to the majority of the population. Many of the remaining rivers experience intermittant flow.

Although the future is unclear as to conversion of coal to other forms of energy in the state, several fossil fuels related projects have been proposed for South Dakota. These projects are depicted on the following page in Figure 9.

Located in the northwestern corner of the state on the border of Minnesota is a 440 Megawatt electric power plant called the Big Stone Electric Generating Plant. Presently this plant utilizes North Dakota lignite. An addition to this existing unit, another has been planned to be named Big Stone Number Two. The new unit is proposed for 1981 with planned capacity of 440 Megawatts.

Although coal gasification plants are not planned for South Dakota, the potential for major facilities exists due primarily to the state's abundant water supply.



FUELS RELATED PROJECTS

Figure 9.

SOURCE: Projects to Expand Fuel Sources in Western States. Washington, D. C. Bureau of Mines, 1976.

The environmental problems associated with energy development will be manifested in South Dakota as a result of energy resource extraction and/or conversion in the neighboring states of North Dakota, Montana and Wyoming. For example, transmission lines may possible be developed in the western portion of the state to be tied into mine mouth generating facilities in Wyoming. Railroads will be affected as North Dakota lignite is transported to the Big Stone Generating Plant.

There are four hydroelectric generating plants located on the Missouri River. A 1975 estimate described one and one-half billion kilowatt hours (of the total eight billion) as being utilized within the state. The remainder was exported.

B. Workforce Profile

The South Dakota Office of Energy Policy is the major agency responsible for energy activities within the state. The major purposes of the agency are as follows:

- Promote energy conservation in the private sector;
- Implement an energy conservation program for state government;
- Collect and disseminate information necessary for the formulation of energy policies; and,
- Evaluate and prepare recommendations for the Governor regarding energy distribution and development.

The following table details the current staffing levels of the state energy office. All person's depicted in the table have been on the staff for the last year except for the consultant and the intern. The turnover rate is relatively low.

TABLE XXII

SOUTH DAKOTA OFFICE OF ENERGY POLICY

Current (1976) Staffing Level

Position	1976	%/annum turnover (average)
Director	1	0%
Deputy Director	1	0%
Policy Analyst	1	20%
Consultant	1	*
Intern	1	*
Energy Conservation Specialist	1	20%
Secretarial	1	N/A
TOTAL	7	N/A

* unavailable

The Legislature has authorized four of the above positions: Director, Deputy Director, Technical Analyst, and Secretary. However, the Public Service Employment program assists with additional staff.

There are no firm figures available for the private sector workforce at this time.

C. Workforce Projections

State personnel have described a reorganization which may occur within the next five years. Under the reorganization the Office of Energy Policy and the Department of Natural Resources would be consolidated.

The table below details the estimated workforce requirements for the Office of Energy Policy to 1982. These positions would be needed

without regard to the reorganization. Therefore, the energy staff would be as depicted below whether remaining as an independent entity or being consolidated under the reorganization plan.

TABLE XXIII

SOUTH DAKOTA OFFICE OF ENERGY POLICY

Workforce Projections to 1982 (est.)

Position	1976	1977	1978	1979	1980	1981	%/annum turnover (average)	%/annum growth (average)
Director	1	1	1	1	1	1	0%	0%
Deputy Director	1	1	1	1	1	1	0%	0%
Policy Analyst	1	1	2	3	4	5	20%	42%
Consultant	1	1	2	2	2	2	*	20%
Intern	1	1	2	2	3	3	*	30%
Energy Conservation Specialist	1	3	5	6	7	8	20%	64%
Attorney	0	0	1	1	1	1	*	20%
Secretarial	1	1	2	2	4	4	N/A	40%
TOTAL	7	9	16	18	23	25	N/A	31%

* unavailable

D. Training and Certification

Individual members of the Office of Energy Policy attend workshops, conferences and seminars directly or indirectly related to their area of expertise. The Office does not conduct training sessions. However, public information and education is offered where time and staff resources are available. For the most part, conservation of energy is a major area of concern which is stressed with the citizens of South Dakota.

E. Career Potential

Career opportunities will be available for the most part within the private sector. Attorneys and Policy Analysts will present job opportunities at the state level. Research, Environmental Impact Statement (E.I.S.) and energy conservation expertise will be representative of the occupational skills desired in the next three to five years at both the state and the local levels. For the majority of opportunities at least one post-secondary degree will be required.

F. Conclusion

South Dakota is not presently nor is it projected to become an energy producing state. However, according to the Department of Interior, Bureau of Mines publication #8719, Projects to Expand Fuel Sources in Western States, Washington, D.C., 1976, there are energy related projects planned for the state. Eight electric power plants, two coal conversion plants and one natural gas processing plant are proposed. In addition, there is increased interest in the mining and milling of uranium as a full source for the light-water reactor (LWR) nuclear fuel cycle.

As present, 43% of the energy consumed in South Dakota is allocated to the automobile. There is a scarcity of public transportation in the state.

South Dakota has been identified as a repository site for nuclear wastes. The state is one of thirteen designated by the U.S. Energy Research and Development Administration (ERDA) for pre-site testing.

Evidence suggests that South Dakota will become a "bridge" state for the transportation of coal through South Dakota to and from other states. As mentioned previously, pipelines, railroads and other secondary factors will affect South Dakota as energy development continues within neighboring states.

Selected Post Secondary Institutions With Formal Environmental Energy Programs

South Dakota's institutions of higher education are just beginning to develop programs in the environmental area. Majors in such areas as engineering, earth science, agronomy, biology and chemistry are common, but there is apparently only one environmental program in the state. This program is an Environmental Management major at South Dakota State University.

There are very few two-year colleges in South Dakota. Because the state has a small population and is generally rural, it does not appear that more two-year institutions will be created in the near future. Of the few two-year colleges in the state, none has an environmental program at the present time.

The environmental education needs of South Dakota will probably have to be met at the four-year level for the foreseeable future. On the following page, more information on Environmental Management at South Dakota State University is presented.

SENIOR INSTITUTIONS

South Dakota State University
Brookings, South Dakota

Program: Environmental Management (B.S.)

Hours required for major: Semester - 126
Program Inception: not available
Staff Size: Three professionals plus support from other departments.
Enrollment: 15
Graduates (1976): not available
Placement: an estimated 100%
Graduate Work: 0

Courses (Selected)

Environmental Conservation
Environmental Biology
Soils
Physical Climatology
Environmental Chemistry
Agricultural Waste Management
Environmental Management
Geology
Environmental Microbiology

State Legislation

SOUTH DAKOTA GENERAL

TITLE:

Environmental Policy Act
South Dakota Code

PURPOSE:

To provide a system of environmental impact statements among state agencies to ensure the quality of the environment.

DEFINITIONS:

1. Agency
2. Actions
3. Environment
4. Environmental Impact Statement
5. Draft Environmental Impact Statement
6. Secretary
7. Board

ADMINISTERING AUTHORITY:

Department of Environmental Protection
Board of Environmental Protection
All State Agencies

AUTHORIZATIONS:

To prepare an Environmental Impact Statement (EIS) for all proposed major state action having a significant effect upon the environment;
To review and make available to the public all EISs;
To establish EIS guidelines.

SOUTH DAKOTA AIR

TITLE:

Clean Air Act
South Dakota Code 34-16A

PURPOSE:

To provide a coordinated statewide program of air pollution prevention, abatement and control to achieve and maintain reasonable levels of air quality.

DEFINITIONS:

1. Air contaminant
2. Air pollution
3. Emission
4. Person
5. Agency
6. Director
7. Commission
8. Board

ADMINISTERING AUTHORITY:

Department of Environmental Protection
Board of Environmental Protection

AUTHORIZATIONS:

To assume certain duties of the State Department of Health relating to air pollution;
To issue regulations pursuant to the act;
To conduct studies relating to air pollution;
To undertake air pollution monitoring;
To classify air contaminant sources;
To establish ambient air quality standards;
To control fuels permitted to be sold in the state;
To issue permits for air pollutant equipment and control devices;

AUTHORIZATIONS (Cont'd):

To approve construction of new air pollution sources;
To grant variances under the act;
To generally enforce the act.

PROHIBITED ACTS:

To fail to obtain a permit for air pollutant devices;
To fail to obtain a permit for air pollution source construction;
To violate the terms of any permit or variance;
To violate other regulations issued pursuant to the act.

PENALTIES:

Fines of up to $5,000.

SOUTH DAKOTA PESTICIDES

TITLE:

Agricultural Pesticide Application Act
South Dakota Code 38-21

PURPOSE:

To provide for the protection of the environment and the control of pesticides through a pesticide applicator certification program.

DEFINITIONS:

1. Animals
2. Certified applicator
3. Commercial applicator
4. Defoliant
5. Desiccant
6. Device
7. Environment
8. Equipment
9. Fungus
10. Insect
11. Land
12. Licensed applicator
13. Licensed operator
14. Licensed pesticide dealer
15. Licensed public operator
16. Nematode
17. Pest
18. Pesticide
19. Plant regulator
20. Private applicator
21. Restricted use pesticide
22. Secretary
23. Spray adjuvant
24. Unreasonable adverse effect on environment
25. Weed

ADMINISTERING AUTHORITY.

Department of Agriculture

AUTHORIZATIONS:

To issue regulations pursuant to the act;
To enforce the act;
To classify pesticides and restrict their usage;

AUTHORIZATIONS (Cont'd):

To enter and inspect property in enforcement of the act;
To control pesticide storage and disposal;
To license pesticide dealers;
To establish applicator certification standards;
To categorize commercial applicators and certify commercial and private applicators;
To issue experimental use permits.

CERTIFICATION OR LICENSING:

Users of restricted use pesticides must be certified;
Applicators of restricted use pesticides must be licensed;
Pesticide dealers must be licensed;
Six categories of applicator and operator are established.

PROHIBITED ACTS:

To use restricted use pesticides without certification;
To engage in pesticide application business without license;
To sell restricted use pesticides without license;
To violate other act provisions or regulations.

EXEMPTIONS:

Licensing not required for farmers, veterinarians, or research personnel, but certification is required.

PENALTIES:

Fines of up to $300 or 30 days imprisonment.

SOUTH DAKOTA RADIATION

TITLE:

Radiation Control Act
South Dakota Code 44-03

PURPOSE:

To establish a program of radiation control through registration of radiation producing devices.

DEFINITIONS:

1. Dose
2. Personnel monitoring
3. Exposure survey
4. Industrial radiography
5. Registration
6. Registrable item or person
7. Shielding
8. Leakage radiation
9. Scattered radiation
10. Services
11. Stray radiation
12. Agency

ADMINISTERING AUTHORITY:

Department of Health

AUTHORIZATIONS:

To register all radiation sources in the state;
To evaluate radiation hazards and issue corrective orders;
To generally supervise the use of radiation sources and radioactive materials;
To enforce the act.

PROHIBITED ACTS:

To fail to register radiation sources as required;
To maintain or operate any fluoroscopic shoe fitting device;
To fail to minimize human radiation exposure;
To allow X-ray equipment to be operated other than by trained personnel;
To dispose of radioactive materials without approval of department;
To fail to keep any required records.

EXEMPTIONS:

Electronic products producing only incidental radiation not required to be registered.

PENALTIES:

NRC AGREEMENT STATE: No

SOUTH DAKOTA SOLID WASTE

TITLE:

Solid Waste Disposal Act
South Dakota Code 34-16B

PURPOSE:

To provide for a coordinated statewide program of solid waste management, and to provide for appropriate distribution of responsibilities for such goal.

DEFINITIONS:

1. Solid waste
2. Person
3. Disposal site
4. Solid waste management system
5. Committee
6. Department
7. Director

ADMINISTERING AUTHORITY:

Board of Environmental Protection
Department of Environmental Protection

AUTHORIZATIONS:

To act as a state lead agency in solid waste matters;
To issue regulations relating to collection, transportation, processing, resource recovery and disposal of solid wastes;
To administer a solid waste disposal permit program;
To provide technical assistance to local governmental units;
To approve local solid waste disposal plans;
To maintain local solid waste management systems;
To generally enforce the act.

PROHIBITED ACTS:

To construct or alter a solid waste disposal facility without a permit;
To dispose of solid waste other than at a proper disposal site;
To dispose of solid waste into waters of the state;
To burn solid waste except under approved circumstances;
To violate other provisions.

EXEMPTIONS:

Farmers or ranchers can dispose of own solid waste on own land.

PENALTIES:

Fines of up to $300.

SOUTH DAKOTA WASTE WATER

TITLE:

Water Pollution Control Law
South Dakota Code 46-25

PURPOSE:

To provide a program for the control of water pollution in the state and to protect the public health and welfare.

DEFINITIONS:

1. Pollution
2. Wastes
3. Sewerage system
4. Treatment works
5. Disposal system
6. Waters of the state
7. Person
8. Board
9. Secretary
10. Point source
11. Pollutant
12. Publicly owned treatment works

ADMINISTERING AUTHORITY:

Department of Environmental Protection
Board of Environmental Protection

AUTHORIZATIONS:

To conduct water pollution research and collect water pollution information;
To act as the state lead agency in water pollution matters;
To establish a general policy of water pollution prevention and abatement;
To classify all waters of the state;
To establish water quality and effluent standards;
To administer the state water pollutant discharge program;

AUTHORIZATIONS (Cont'd):

To issue regulations pursuant to the act;
To enter and inspect property in enforcement of the act;
To require the keeping of certain records;
To generally enforce the act.

PROHIBITED ACTS:

To violate any effluent standards;
To cause or allow water pollution in the state;
To violate the terms of any permit;
To discharge any radiological, chemical or biological warfare agents into waters;
To fail to keep any required records;
To violate other act provisions.

PENALTIES:

First offense criminal - fines of up to $25,000 or one year imprisonment;
Subsequent offenses criminal - fines of up to $50,000 or one imprisonment;
Civil - fines of to $10,000 per day.